UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 2 8 2019

The Honorable Richard G. Sneed
Principal Chief
Eastern Band of Cherokee Indians
P.O. Box 455
Cherokee, North Carolina 28719

Dear Chief Sneed:

The United States Environmental Protection Agency has completed its review of the Eastern Band of Cherokee Indians (EBCI) Administrative Regulations Title 15 - Subchapter 2B, *Surface Water and Wetlands Standards* (WQS) that you provided to Mr. Onis "Trey" Glenn, III, Region 4 Administrator on November 8, 2018 for formal review pursuant to Section 303(c) of the Clean Water Act (CWA). By letter, Mr. Michael McConnell, Attorney General, certified that the tribal regulations have been properly promulgated in accordance with the laws of the Eastern Band of Cherokee Indians. These regulations became effective on December 6, 2018.

The EPA's decision on these revisions is detailed in the enclosed document, *Decision Document of the United States Environmental Protection Agency Determination Under Section 303(c) of the Clean Water Act Review of The Eastern Band of Cherokee Indians' Water Quality Standards Administrative Regulations.* As outlined in the enclosed decision document, the EPA is approving all provisions in 15 CAR 2B, which are considered new water quality standards, with the exception of the provisions where the review has not been completed. The EPA has not completed review of the specific conductance and dissolved solids criteria that protect the ceremonial, recreation, cold water aquatic habitat, and warm water aquatic habitat designated uses as well as the threshold odor and radioactive substance criteria that protect the public water supply designated use. Additional information has been requested from the Tribe. Once the analysis of the additional information is completed, the EPA will provide the conclusions of its review by separate cover.

In addition to the EPA review pursuant to Section 303(c) of the CWA, Section 7(a)(2) of the Endangered Species Act requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (FWS), to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designed critical habitat of such species. The EPA Region 4 transmitted the Biological Evaluation (BE) to the Ashville, North Carolina FWS Field office on October 12, 2018. The EPA received concurrence from this office on October 19, 2018. A copy of the EPA's October 12, 2018 letter with the BE and FWS's concurrence is enclosed.

We would like to commend you and your staff on the adoption of the initial EBCI WQS to protect the Tribe's waters. The development and adoption of the WQS was a multi-year effort that required major tribal resources and staff dedication. We would like to acknowledge the expertise and hard work of Mr. Michael Bolt and his staff that was shown during the development of the WQS. We recognize that adoption of WQS is the first step in developing the Tribe's WQS program and that issues and questions may arise during the implementation of the WQS. If we can be of assistance or have questions about this action, please do not hesitate to call me at (404) 562-9345 or have a member of your staff contact Ms. Eve Zimmerman at (404) 562-9259 or Zimmerman.Eve@epa.gov. We look forward to working with you on the development of your program.

Sincerely,

Jeaneanne M. Gettle, Director
Water Protection Division

Enclosure

cc: Mr. Michael LaVoie, EBCI

Mr. Michael Bolt, EBCI

Decision Document of the United States Environmental Protection Agency
Determination Under Section 303(c) of the Clean Water Act Review of
The Eastern Band of Cherokee Indians' Water Quality Standards Administrative Regulations

I. Introduction

This document summarizes the Environmental Protection Agency (EPA) review of the Eastern Band of Cherokee Indians Water Quality Standards, Administrative Regulations (EBCI or Tribal WQS) found in Title 15 of the Cherokee Administrative Regulations (CAR) and provides the basis for the EPA's decisions under the federal water quality standards (WQS) regulations at 40 C.F.R. Part 131 Subpart B and Section 303(c) of the Clean Water Act (CWA) to approve or disapprove the new WQS submitted by the Eastern Band of Cherokee Indians (Tribe) to the EPA on November 8, 2018. The EPA received a letter of clarification that the regulations had been duly adopted from the Attorney General on November 23, 2018. On December 6, 2018, the EPA received notification that no comments were received as a result of the public participation process. On December 18, 2018, the EPA was provided with a copy of the Tribal WQS that reflected an administrative process to renumber the regulations, as well as a December 18, 2018 memo indicating the Tribal WQS were effective December 6, 2018.

Background

Under Section 303(c) of the CWA and federal implementing regulations at 40 C.F.R. Part 131, states and authorized tribes (tribes) have the primary responsibility for reviewing, establishing, and revising WQS, which consist of the designated uses of a waterbody or waterbody segment, the water quality criteria necessary to protect those designated uses, and an antidegradation policy. The regulations at 40 C.F.R. Sections 131.10, 131.11, and 131.12 provide the minimum expectations for designated uses, water quality criteria, and antidegradation, respectively.

Section 303(c)(2)(B) of the CWA requires states and tribes to adopt water quality criteria for pollutants listed pursuant to Section 307(a)(1) for which the EPA has published criteria under Section 304(a) where the discharge or presence of these pollutants could reasonably be expected to interfere with the designated uses adopted by the state or authorized tribe. In adopting such criteria, states and tribes must establish numeric values based on one of the following: (1) the EPA's 304(a) guidance; (2) the EPA's 304(a) guidance modified to reflect site-specific conditions; or (3) other scientifically defensible methods. 40 C.F.R. Section 131.11(b)(1). In addition, states and tribes can establish narrative criteria where numeric criteria cannot be determined or to supplement numeric criteria. 40 C.F.R. Section 131.11(b)(2).

Each state or tribe must follow its own legal procedures for adopting standards. 40 C.F.R. Section 131.6(e). The state or tribe must submit certification by the appropriate legal authority within the state or tribe that the WQS were duly adopted pursuant to state or tribal law. Id.

Section 303(c) of the CWA also requires states and tribes to submit new or revised WQS to the EPA for review. The EPA is required to review these changes to ensure revisions to WQS are consistent with the CWA. The EPA only reviews state or tribal submittals that are WQS. Not every provision within state or tribal regulations is a WQS. The EPA determines whether a provision is a new or revised WQS[1] after considering the following four questions:

[1] Since this submission from the Tribe represents the first time WQS are being submitted for federal review, the remainder of the document simply refers to "new WQS" when the EPA determines a provision is subject to its review.

(1) Is the provision legally binding, adopted or established pursuant to state or tribal law?
(2) Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?
(3) Does the provision express or establish the desired condition (e.g. uses, criteria) or instream level of protection (e.g. antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?
(4) Does the provision establish a new WQS or revise an existing WQS?

When the EPA approves a state or tribal WQS, it becomes the applicable WQS for purposes of the CWA. 40 C.F.R. Section l31.21(c)(2).

The Tribe received treatment in a manner similar to a state (TAS) status for administering federally approved WQS on January 26, 2015. Over the next several years, the Tribe coordinated with the EPA to prepare a draft set of regulations for public comment. On June 7, 2018, the Tribe initiated a public comment period on its proposed Tribal WQS to protect tribal waters. Public notices announcing the availability of the Tribal WQS for review and the August 15, 2018 public hearing were published on June 7, and August 9, 2018 in the Cherokee One Feather and on the Tribe's Division of Agriculture and Natural Resources Website from June 7, 2018 to August 15, 2018. No comments were received during the public comment period.

On November 8, 2018, the Honorable Richard G. Sneed, Principal Chief of the Eastern Band of the Cherokee Indians, presented the Tribal WQS submittal to Mr. Onis "Trey" Glenn, III, the Region 4 Administrator, for formal review pursuant to Section 303(c) of the CWA. The submittal included the certification by Mr. Michael McConnell, the Attorney General, that the Tribal WQS were duly adopted pursuant to Tribal law. Subsequently, the Attorney General provided clarifying information concerning the Tribe's public participation process and the effective date of the Tribal WQS Regulations in follow up submittals.

Endangered Species Act Requirements

In addition to the EPA's review under Section 303 of the CWA, Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the United States Fish and Wildlife Service (FWS), to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species. With regard to consultation activities for Section 7 of the ESA, the EPA Region 4 concluded that the WQS being approved by the Agency would either have no effect or may affect, but were not likely to adversely affect, threatened and endangered species or their designated critical habitat. The EPA also concluded that it had no discretion to consult for some provisions of the approved WQS because they were derived to protect human health or related to antidegradation and the EPA has no discretion to revise an otherwise approvable human health criterion or antidegradation provision which meets the minimum regulatory requirements to benefit listed species.

For ESA Section 7(a)(2) consultation requirements, the EPA determined that no federally listed threatened or endangered aquatic species were present in the action area and that the Tribal WQS being approved by the Agency would have no effect on listed species in downstream state waters. Informal consultation was initiated with FWS on January 20, 2015, and concurrence was received on October 19, 2018.

Summary of EPA Approval Actions and No Action Items

The EPA has approved all those provisions in 15 CAR 2B which it considered to be new WQS, except for provisions identified below where review has not yet been completed. The EPA's review of the specific conductance and dissolved solids criteria that protect the ceremonial, recreation, cold water aquatic habitat, and warm water aquatic habitat designated uses as well as the threshold odor and radioactive substance criteria that protect the public water supply designated use has not been completed. Additional information has been requested from the Tribe. The review of the criteria will be completed when the EPA receives that information. No parts of 15 CAR 2B-1, -7, -10 through -15[2], or Appendices B-D were determined to be new WQS based on the EPA's review and understanding of the Tribe's implementation of these sections. Therefore, no further review or action is required by the EPA for Sections 2B-1, 7, 10-15 or Appendices B-D.

II. EPA Review Results

15 CAR 2B-1 Introduction

Section 2B-1 of the Tribal WQS provides cultural insight into the importance of the water resources to the Tribe, the purpose of the Tribal WQS, and the entity responsible for protecting the tribal waters. These introductory statements do not establish a legally binding requirement under tribal law nor do they describe a desired ambient condition of a waterbody. Therefore, the introductory statements are not WQS subject to EPA review under CWA Section 303(c).

15 CAR 2B-2 Definitions

Section 2B-2 of the Tribal WQS contains definitions for 26 terms. Each definition was reviewed to determine if it was a new water quality standard subject to EPA review under Section 303(c). The definitions were divided into two categories, definitions which are new WQS and definitions which are not new WQS.

a. Definitions which constitute new WQS:

(a) Acute Toxicity
(b) Ceremonial and religious water use
(c) Cherokee Waters
(d) Chronic Toxicity
(f) EPA
(g) Geometric mean
(h) Mixing zone or dilution zone
(i) Natural Background Conditions
(j) NPDES
(k) Outstanding Reservation Resource Waters (ORRW)
(l) pH
(m) Pollutant Minimization Plan (PMP)
(o) Practicable

[2] The numbering of the Tribal WQS in this decision document reflects the version of the Tribal WQS that was submitted on December 18, 2018. All submitted versions of the Tribal WQS are contained in the Administrative Record for this action.

(q) Primary Contact Recreation
(t) Temperature
(u) Total dissolved solids
(v) Toxicity
(w) Toxic substance or toxicant
(x) Tribal reserve lands
(y) Tribal resource waters (TRW)
(z) Turbidity

The definitions above explain the terms as they are used in the Tribal WQS, provide references to additional information for implementing the WQS provisions, and serve to make the component terms operable in the Tribal WQS. The definitions are scientifically defensible, consistent with guidance documents, and/or provide information needed for the application and implementation of the Tribal WQS. Therefore, the 21 definitions identified above are consistent with Section 303(c) of the CWA.

In accordance with its authority under Section 303(c) of the CWA and 40 C.F.R. Part 131, EPA approves definitions (a)-(d), (f)-(m), (o), (q), and (t)-(z) in Section 2B-2 of the Tribal WQS, shown above.

b. Definitions which are not new WQS:

(e) Common Plan of Development or Sale
(n) Post-Development
(p) Pre-Development
(r) Stormwater
(s) SWPP (Stormwater Pollution Prevention Plan)

Definitions (e), (n), (p), (r), and (s) in Section 2B-2 define terms used in functions/programs of the Tribe that are not authorized by Section 303(c) of the CWA. These five definitions do not address designated uses, water quality criteria, or antidegradation nor do they provide information necessary to implement the new WQS. The definitions are not WQS subject to EPA review under CWA Section 303(c).

15 CAR 2B-3 Water Designations

The Tribe addresses its water designations within two subsections of Section 2B-3. Each subsection is described below in further detail. The introductory sentence "[t]he Tribal waters support a diverse array of cultural, environmental, and economic values, such as spiritual healing, cleansing, drinking water, recreation, and habitat uses" is consistent with the goals of Section 101(a)(2) of the CWA and 40 C.F.R. Sections 131.6(a) and 131.10(a)-(c). This introductory statement is approved by the EPA under CWA Section 303(c).

15 CAR 2B-3.1 Designation of Uses

The Tribe has established its designated uses for tribal waters in Subsection 2B-3.1, which consists of the following text:

The uses of Cherokee waters are as follows:

(a) Ceremonial Use (C) - The quality of water is suitable for traditional purposes by members of the Eastern Band of Cherokee that involve immersion and intentional or incidental ingestion of water.

(b) Public Water Supply Use (PWS) - The quality of water is suitable for a source of raw water supply for drinking and food processing purposes.

(c) Recreation Use (REC) - The quality of water is suitable for recreational activities in or on the water when the ingestion of small quantities of water is likely to occur, such as swimming, fishing, wading, and other activities likely to result in immersion.

(d) Cold-Water Aquatic Habitat Use (CAH) - The water quality is suitable for propagation and survival of cold water aquatic communities such as trout.

(1) Water bodies designated as CAH may be further classified as CAH Class 1 or CAH Class 2, based on their bioclassification, which can be determined by habitat assessment and investigation of benthic macroinvertebrate assemblages.
(2) CAH Class 1 are those waters having conditions which will sustain and allow for the propagation and protection of salmonids on a year-round basis.
(3) CAH Class 2 are those waters that allow for the year-round survival of salmonids but may not have conditions (i.e., adequate reproductive habitat and temperatures tolerated by juvenile salmonid species) to meet all life-history requirements. These waters also support propagation and maintenance of cool and warm-water species.

(e) Warm-Water Aquatic Habitat Use (WAH) - The water quality is suitable for the propagation and maintenance of a healthy, well-balanced population of warm water fish, wildlife, and other aquatic life.

Minimum requirements for state and tribally adopted WQS include use designations consistent with the provisions of CWA Sections 101(a)(2) and 303(c)(2). 40 C.F.R. Section 131.6. Sections 101(a)(2) and 303(c)(2) specify the goal of the Act to protect the uses of propagation of fish and wildlife and recreation in and on the water. If a state or tribe adopts designated uses less stringent than the uses specified in Section 101(a)(2), documentation must be submitted supporting that action. CWA Section 303(c)(2) and 40 C.F.R. Section 131.10(a) require consideration of additional uses, including public water supply, agricultural purposes, and others.

Subsection 2B-3.1 establishes and describes the five main categories of designated uses that are to be protected for tribal waters. The designated uses provided in Subsection 2B-3.1 include ceremonial, recreation, aquatic life use of cold water aquatic habitat, aquatic life use of warm water aquatic habitat, and public water supply.

The ceremonial, recreation, and aquatic life uses are consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a) and are supported by criteria that are at least as stringent as the federal recommended criteria, with respect to the standards that the EPA is reviewing at this time. However, the ceremonial use is supported by narrative criteria allowing riparian buffers to be assigned which could be considered more stringent than federal requirements. The public water supply uses are

also consistent with Section 303(c)(2) and 40 C.F.R. Section 131.10(a) but are protected by criteria more stringent than the federal recommended criteria.

Because the Tribe has transitional "cool water" habitats, the Tribe is considering refinement of the cold-water aquatic habitat use (CAH) to protect these cool water habitats. In preparation for future refinement based on additional information to be gathered by the Tribe for a given waterbody (per the bioclassification established in Section 2B-3.1(d)(1)), the cold-water aquatic habitat use has been sub-divided into two more descriptive cold-water habitat sub-categories. The additional descriptors "Class 1" and "Class 2" were adopted by the Tribe for future use where necessary to clarify the appropriate designated use for a waterbody. "CAH Class 1" can be assigned for a waterbody "having conditions which will sustain and allow for the propagation and protection of salmonids on a year-round basis." "CAH Class 2" can be assigned waterbodies that allow "for the year-round survival of salmonids but may not have conditions) to meet all life-history requirements.

We understand that the Tribe is collecting additional biological and water quality data to better understand the aquatic life and the life history requirements of these streams and develop criteria that provide a more specialized level of protection. As the CAH use is refined, the Tribe should also consider whether the refined use is supported by more or less stringent criteria. The refined use may be considered "a fishable swimmable use" and be equally protective of the aquatic life. However, if the criteria that support the sub-category are less stringent than the criteria supporting the original CAH use, 40 C.F.R. Section 131.10(j)(2) requires a state or tribe to conduct a use attainability analysis (UAA). That analysis would describe the physical, chemical, biological, and economic factors affecting the attainment of the designated use[3]. As an alternative, the Tribe may consider using the provision found in 2B-4.1.6.4(d) of the Tribal WQS for developing a site-specific criterion based on natural background conditions, the recalculation procedure, or other scientifically defensible method. Since this provision would establish a new scientific basis of the criterion, a UAA is not required. Any revised designated use or criterion is subject to EPA review under CWA Section 303(c) and is not effective for CWA purposes until approved by the EPA. 40 C.F.R. Section l31.21(c)(2).

The EPA implementing regulations require states and tribes to specify appropriate water uses to be achieved and protected and to adopt water quality criteria that protect the designated use. 40 C.F.R. Sections 131.10(a) and 131.11(a). Such criteria must be based on a sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. Id. For waters with multiple use designations, the criteria shall support the most sensitive use. Id. In addition, the EPA's regulations require that in establishing criteria, a state or tribe shall consider WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of WQS of downstream waters. 40 C.F.R. Section 131.10(b). The five categories of designated uses and the two subclasses of the CAH use are consistent with the goals of Section 101(a)(2) of the CWA and 40 C.F.R. Sections 131.6(a) and 131.10(a)-(c). These WQS are approved by the EPA under CWA Section 303(c).

[3] As defined in 40 C.F.R. Section 131.3(g), a use attainability analysis (UAA) is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 C.F.R. Section 131.10(g). States may designate a use or remove a use that is *not* an existing use, if the state conducts a use attainability analysis (UAA) as specified in 40 C.F.R. Section 131.10(g) that demonstrates attaining the use is not feasible because of one of the factors in Section 131.10(g).

15 CAR 2B-3.2 Designation of Tribal Waterbodies

In Subsection 2B-3.2, the Tribe designated the uses for the tribal waterbodies with provisions for default uses, multiple uses for a waterbody, and the ability to revise inappropriate use designations with the following text:

(a) Cherokee Waters are contained in the following sub-watersheds:

Sub-Watershed	***HUC Code/Description***
Cheoah River	*0601020401*
Hiwassee River	*0602000207*
Oconaluftee River	*0601020302*
Raven Fork	*0601020302*
Soco Creek	*0601020302*

(b) The following waterbodies are designated as PWS:
The Oconaluftee River and all its tributaries upstream of the raw-water intake for the Tribal Drinking Water Plant (N 35.499955, W 83.310232).

(c) The following waterbodies are designated as WAH:
The Tribal waters on the southern side of the Tuckasegee River, upstream and downstream of the confluence with the Oconaluftee River.

(d) The following waterbodies are designated as CAH Class I:
(Reserved for future use.)

(e) The following waterbodies are designated as CAH Class 2:
(Reserved for future use.)

(f) All Cherokee Waters are designated for Ceremonial Use.

(g) All other Cherokee Waters not specifically mentioned in this section are designated for Recreation and CAH Uses.

(h) When multiple uses are recognized for a waterbody, the designated use with the most stringent water quality criteria shall be the applicable criteria for each parameter.

(i) If the Division of Agriculture and Natural Resources (DANR) determines that the designated use is not appropriate, the Tribe will evaluate the highest attainable use and, if appropriate, revise the designation in accordance with 40 CFR 131.10.

40 C.F.R. Section 131.10(a) requires a state or tribe to specify the appropriate designated uses to be achieved and protected in tribal waters taking into consideration the use and value of the water for public water supply; propagation and protection of fish, shellfish, and wildlife; and recreation in and on the waters. The designated uses are identified in Subsection 2B-3.1 and applied to the tribal waters in Subsection 2B-3.2.

15 CAR 2B-3.2(a) lists the five sub-watersheds where tribal waters are located and associated HUC Code for the sub-watershed. Because of the consistency of uses found in the sub-watersheds on tribal lands, the Tribe elected to designate uses on a sub-watershed basis.

The EPA concludes the method of designating uses using a sub-watershed approach in the Tribal WQS is consistent with CWA Section 303(c) and 40 C.F.R. Section 131.10(a). Therefore, the method for designating uses on a sub-watershed basis at 2B-3.2(a) is approved by the EPA under CWA Section 303(c).

The water bodies designated for the Public Water Supply (PWS) Use are located at 2B-3.2(b). Consistent with the sub-watershed approach used with the preceding provision, the Tribe designated the Oconaluftee River and all tributaries upstream of the raw water intake of the Tribal Drinking Water Plant for the PWS Use.

The designation of the Oconaluftee River and its tributaries for the PWS Use in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.10(a). Therefore, the use designation of the Oconaluftee River for the PWS Use at 2B-3.2(b) is approved by the EPA under CWA Section 303(c).

The majority of tribal waters are cold water streams that sustain and allow propagation of cold-water species such as salmonids. However, there are a small number of warm-water streams on tribal lands that support other species and have a higher temperature. This provision includes the listing of the water bodies designated for the Warm-water Aquatic Habitat (WAH) Use. Based primarily on the historical tribal monitoring data for temperature, knowledge of the biological community, and consideration of the state of North Carolina's designated use of the Tuckasegee River, the Tribe designated the southern side of the Tuckasegee River, upstream and downstream of the confluence with the Oconaluftee River, as WAH, in 2B-3.2(c).

The designation of southern side of the Tuckasegee River for the WAH Use in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.10(a). Therefore, the designation of the southern side of the Tuckasegee River for the WAH Use at 2B-3.2(c) is approved by the EPA under CWA Section 303(c).

As discussed in Subsection 2B-3.1, the Tribe is adding two subclasses for the Cold-water Aquatic Habitat (CAH) Use. As shown in the Tribal WQS at 2B-3.2(d) and (e), these provisions were included for future use. No waters are currently designated for these subclasses.

In Section 3.1, the EPA concluded the concept of the two sub-classes was consistent with the goals of the CWA and EPA's regulations and was therefore approved. However, the Tribal decision to defer placing any specific waterbodies into those subclasses is the substance of the provision at 2B-3.2(d) and (e). The EPA concludes that reserving the two CAH sub-classes for future use in the Tribal WQS is within their discretion and not a change to Tribal WQS that is subject to the EPA's review at this time. Therefore, since no waters have been designated at this time, no EPA action is required. As set out above, where the criteria associated with the use are less stringent than the criteria associated with the original designated use for the water, the EPA expects the Tribe will make scientific demonstrations regarding the appropriateness of any future redesignation. Such changes must be submitted to the EPA for review and the EPA must approve the revised designation for the redesignation to be effective for CWA purposes.

In 2B-3.2(f), all tribal waters are designated for the Ceremonial Use. The Ceremonial Use is supported by the surface water criteria found at 15 CAR 2B-4.1 and 15 CAR 2B-5.1.

The EPA concludes the designation of all waters for the Ceremonial Use in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.10(a). Therefore, the designation of all waterbodies for Ceremonial use at 2B-3.2(f) is approved by the EPA under CWA Section 303(c).

The provision at 2B-3.2(g) provides the default designated uses for all tribal waterbodies not specifically mentioned elsewhere. The default designations are recreation and cold-water aquatic habitat uses. The EPA concludes the establishment of the default designated uses in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.10(a). Therefore, the default designated uses at 2B-3.2(g) are approved by the EPA under CWA Section 303(c).

Since 2B-3.2(g) establishes the recreation and cold-water aquatic habitat uses as default uses for any unlisted streams, it is very probable that multiple criteria for a parameter will apply to a particular water. When this situation occurs, the Tribal WQS at 2B-3.2(h) require the use of the most stringent criteria associated with the water's designated uses. By using the most stringent criteria, all designated uses will be protected. The EPA concludes the requirement of using the most stringent criteria and use when multiple criteria and uses are applicable in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(a)(1). Therefore, the requirement at 2B-3.2(h) of using the most stringent criterion when multiple criteria apply to a waterbody is approved by the EPA under CWA Section 303(c).

The provision at 2B-3.2(i) requires the Tribe to determine and designate the highest attainable use for a waterbody when the waterbody is not attaining its designated use. The provision is consistent with 40 C.F.R. Section 131.10(g). Therefore, the requirement at 2B-3.2(i) is approved by the EPA under CWA Section 303(c).

15 CAR 2B-4 General Water Quality Criteria

In Section 2B-4, the Tribe adopted numeric and narrative criteria as well as methods for deriving criteria when no numeric criteria are contained in the Tribal WQS. The provisions in this section are applicable to all waterbodies unless the waterbody is protected by specific criteria found in Section 2B-5 of the Tribal WQS. Also, this section contains provisions for developing site-specific criteria. Following the five provisions, 2B-4(a) through (e), of the introductory portion of the General Water Quality Criteria section, which are shown immediately below, each subsection of 2B-4.1 is addressed further following discussion of the introductory portion.

> *(a) All surface waters, including those within the mixing zone, must be capable of supporting aquatic life and shall be free from:*
>
> *1. Substances that settle to form objectionable deposits or sediments,*
>
> *2. Floating debris, scum, oil, and other floating materials that form a nuisance or interfere with designated water uses,*
>
> *3. Material or practices that produce objectionable color, odor, taste, or turbidity,*
>
> *4. Substances which are acutely toxic or produce adverse physiological or behavioral responses in humans, animals, plants, fish and other aquatic life,*

5. Substances which produce undesirable aquatic life or result in the dominance of nuisance species, and
6. Substances which cause fish flesh tainting.

(b). When multiple criteria for the same parameter are assigned to a waterbody, the most stringent criterion shall be the applicable criterion.

(c). Unless otherwise specified, parameters which are naturally variable constituents (e.g., pH, temperature, turbidity) should not be exceeded in more than 10% of samples.

(d). All toxics criteria found in Tables 1 and 2 (Appendix A), should not exceed the magnitude listed more than once in a three-year period.

(e). On occasion, there will be natural events, such as floods or other extreme weather events, that may cause a temporary exceedance(s) of the criteria values. When caused by natural events, such exceedances shall not be viewed as adverse to the designated use.

With regard to 2B-4(a), the regulations at 40 C.F.R. Section 131.11(a) require states and tribes to adopt water quality criteria that contain sufficient parameters or constituents to protect designated uses. The EPA believes that an effective WQS program should include both numeric and narrative criteria. Narrative WQS describe the desired water quality goal while numeric criteria define the level needed to protect the designated use. Considering the scientific and technical information supporting the EPA's guidance and recommendations, the EPA concluded that the narrative criteria 1. through 6. of 2B-4(a) in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11. These criteria protect the Tribe's designated uses. Therefore, the narrative criteria at 2B-4(a) are approved by the EPA under CWA Section 303(c).

The second introductory provision, at 2B-4(b), requires the most stringent use criteria be applied to waters with more than one designated use. This requirement is consistent with 40 C.F.R. Section 131.11(a)(1), which requires states and tribes to protect the most sensitive use in waters that have more than one use designation. Therefore, the implementation provision for the criteria at 2B-4(b) is approved by the EPA under CWA Section 303(c).

The provision at 2B-4(c) recognizes the natural variability for parameters such as dissolved oxygen, solids/turbidity, pH, and temperature. The natural variability in these parameters is an appropriate and reasonable factor to consider in implementation of the criteria. These parameters are affected by other natural parameters and processes, such as the effect of temperature on the concentration of dissolved oxygen or the effect of weather on temperature. The EPA considers a 10% variation for natural pollutants to be consistent with EPA's general frequency recommendations for naturally variable pollutants. This provision is consistent with 40 C.F.R. Section 131.13 and 303(c) of the CWA. Therefore, the provision at 2B-4(c) is approved by the EPA under CWA Section 303(c).

The provision at 2B-4(d) establishes the frequency (once in three years) for the toxics criteria in Tables 1 and 2 of Appendix A. This provision is consistent with federal requirements at 40 C.F.R. Section 131.11(a)(1) and Section 3.5.1, *Water Quality Criteria Expression,* of the EPA's *Water Quality Standards Handbook, (2017), EPA 823-B-17-001*. Therefore, the provision at 2B-4(d) is approved by the EPA under CWA Section 303(c).

The final introductory provision, 2B-4(e), recognizes that natural extreme weather events may cause temporary exceedance of a criterion and the exceedance shall not be considered as adverse to the designated use. These exceedances can be excluded from the analysis to remove the effects of confounding variables, such as climatic and hydrologic cycles. The EPA agrees that it is reasonable to exclude data from such events under certain limited circumstances. The Tribe's choice of exceedance is reasonable in that they address water quality variations that may not directly relate to an analysis of whether levels and/or fluctuations are decreasing or increasing, respectively, over a period of multiple years. Therefore, the provision at 2B-4(e) is approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1 Surface Water Criteria

Section 2B-4.1 establishes criteria applicable to all surface waters. The section contains six subsections that provide narrative and numeric criteria as well as instructions for locating and deriving criteria when no criterion is contained in the Tribal WQS. Also, the section contains requirements for application of the criteria, which are reviewed individually below.

15 CAR 2B-4.1.1 Nutrients Criteria

> *Except as due to natural conditions, nutrients shall not be allowed in concentrations that render the waters unsuitable for the existing or designated uses due to objectionable algal densities, nuisance aquatic vegetation, diurnal fluctuations in dissolved oxygen, or pH indicative of excessive photosynthetic activity, detrimental changes to the composition of aquatic ecosystems or other indicators of use impairment caused by nutrients.*

An effective WQS program should include both numeric and narrative criteria. Narrative criteria establish the conditions in the water bodies needed to protect the uses. The Tribal narrative WQS describe the desired water quality goal to protect the existing and designated uses.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the narrative nutrients criteria provision in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(2), and the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.2 Flow

> *Natural daily, seasonal, annual, and inter-annual fluctuations of flow shall be maintained to support the naturally balanced indigenous biological community including those species most sensitive to alterations in flow, including trout and all life stages of trout.*

The Tribe developed narrative flow criteria to protect aquatic life in Tribal waters. The *Final EPA-USGS Technical Report: Protecting Aquatic Life from Effect of Hydrologic Alteration*, EPA Report 822-R-16-007, dated 2016, provided information on the use of narrative flow criteria for protection of aquatic life from the effects of hydrologic alteration. The Tribe's narrative flow criteria are consistent with the EPA's recommendations.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the narrative flow criteria in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(2), and the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.3 pH

The normal pH of the water shall be 6.0 to 9.0 and shall not vary more than 1.0 unit.

The pH criteria provide a range of 6.0 to 9.0 with a variable of 1.0 unit. The EPA's CWA Section 304(a) criteria guidance for pH recommends a criteria range of 6.5 to 9.0 for freshwater aquatic life. However, as set out in the technical information supporting the criteria document it is unlikely that harmful effects will occur between 6.0 and 6.5. All Region 4 states currently provide protection for their waters using 6.0 as the lower end of the pH range. Also, the limit of variation is consistent with EPA's 1972 recommended criteria.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the range of the pH criteria and limit of variation for the pH criteria in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(1)(ii), and the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.4 Temperature

The maximum temperature rise above natural background temperatures shall not exceed 2.8 °C (5.04°F), and in no case shall the temperature exceed 29 °C (84.2 °F).

Subsection 2B-4.1.4 establishes temperature criteria that are applicable to all waters. In the *Quality Criteria for Water*, 1986 ("Gold Book"), the EPA recommends the use of two upper values, one to control the maximum temperature and the second to limit the weekly average, which protect the aquatic life from sudden exposure to extreme change in temperature. Also, the recommendation includes values found to be protective of growth and survival for several fish species. The Tribal maximum criterion of 29°C and the weekly maximum criterion of 2.8°C above natural background are protective for the small mouth bass, sunfish, bluegill bass, and yellow perch found in the tribal warm water streams. These criteria are consistent with the state of North Carolina's temperature criteria that protect its mountain and upper piedmont waters. In addition to general temperature criteria that are applicable to all waters, Tribal WQS include temperature criteria to protect cold-water waterbodies in Section 2B-5.4.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the temperature criteria in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(2) as well as the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.5 Turbidity

The turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in waters not designated as CAH and 10 NTU in waters designated CAH or PWS.

The EPA recommended numeric criteria for turbidity were published in the Report of the National Technical Advisory Committee to the Secretary of the Interior dated April 1, 1968. The recommended criteria are that turbidity in the receiving waters, due to the discharge of wastes, should not exceed 50 Jackson units in warm-water streams or 10 Jackson units in cold-water streams. Since the publication of

the criteria, the method for measuring turbidity has changed from the Jackson Candle Method to the use of a nephelometer method, which expresses the amount of turbidity as Nephelometric Turbidity Units (NTU).

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the turbidity criteria in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(a)(1), and the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.6 Toxic Substances

The Tribe discusses toxic substances in four main parts within 2B-4.1.6: aquatic life criteria, human health criteria, how to apply toxic substance criteria, and how to handle parameters with no established numeric criteria. These four parts are discussed in more detail below.

15 CAR 2B-4.1.6.1 Aquatic Life Criteria

> *The concentration of toxic substances shall not result in chronic or acute toxicity or impairment of the uses of aquatic life and shall not exceed the chronic or acute criteria in* ***Table 1****, unless within a mixing zone or a site-specific criterion is developed consistent with the documented procedures.*

The federal WQS regulations require states and tribes to establish narrative criteria where numeric criteria cannot be established or to supplement numeric criteria to protect the designated uses. Section 2B-4.1.6.1 provides a narrative statement that prohibits pollutants at levels that cause toxicity or impairs the aquatic life uses of warm-water and cold-water aquatic habitat. Also, the provision references the location of numeric criteria. The procedures for developing a site-specific criterion are located in 2B-4.1.6.4.4.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the narrative criteria and the reference to the numeric criteria in Table 1 to protect aquatic life in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(a)(2), (b)(1)(i), and (b)(2), and the 101(a)(2) goals of the CWA. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.6.2 Human Health Criteria

> *The concentration of toxic substances shall not exceed the level necessary to protect human health through exposure routes of fish tissue consumption, water consumption, or other routes identified as appropriate for the particular body of water, as presented in* ***Table 2****. "Water and Organisms" criteria assume the consumption of 2.4 liters of water and 22.0 grams of fish per day, while the "Organisms Only" criteria are based on the consumption of 22.0 grams of fish per day.*

Section 303(c)(2)(A) of the CWA requires states and tribes to adopt criteria to protect the public health and welfare and enhance the water quality and serve the purposes of the CWA. The EPA recognizes that there are two human health exposure routes for surface waters, which are the ingestion of water and the consumption of fish/organisms. To address both exposure routes, the EPA has published *Methodology*

for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) that recognizes two scenarios. The first scenario is the consumption of fish and shellfish. The second scenario is the ingestion of water and the consumption of fish and shellfish. The recommended criteria for the two scenarios are referred to as "Organisms Only" and "Water and Organisms" respectively. Criteria to protect human health for both exposure scenarios are required. The recommended "Organisms Only" criteria are based on a consumption of 22 grams per day of fish, while the "Water and Organisms" criteria are based on the consumption of 22 grams per day of fish and 2.4 liters of water per day. Section 2B-4.1.6.2 of the EBCI WQS contains narrative criteria, which recognize both the recommended rate of consumption of fish and intake of water. Also, the section includes a reference to Table 2, which contains both the "Organism only" and "Water and Organism" numeric criteria. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the narrative criteria, including the reference to the numeric criteria in Table 2, protect human health in the Tribal WQS. The narrative is consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(1)(i), and EPA's recommended 304(a) human health criteria published in 2015. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.6.3 Applying Toxic Substance Criteria

> *When applying acute or chronic toxicity or human health criteria, the following shall apply:*
>
> *(a) For evaluating human health effects, all waters must comply only with the "Organisms Only" criteria, except for water designated as public water supply. Stream segments and tributaries designated as public water supply shall comply with the "Water and Organisms" criteria.*
> *(b) In developing effluent limitations using toxicity or human health criteria the stream flows found in Section 9 shall be used.*

Federally approved WQS must contain sufficient parameters or constituents to protect the designated uses. Waters designated for the protection of human health and aquatic life uses should be supported by criteria based on the EPA's Section 304(a) guidance, the 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods. The Tribe elected to protect its waters with the criteria developed under the CWA Section 304(a) guidance. This provision establishes "Organism Only" human health criteria as the minimum criteria for all tribal waters. However, it recognizes that the waters and the tributaries designated for the public water supply use have two exposure routes - ingestion of water and consumption of fish - and require an increased level of protection afforded by "Water and Organisms". Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the numeric criteria to support the designated use for protection human health in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(1)(i), and the EPA's recommended human health criteria published in 2015. Therefore, these criteria at 2B-4.1.6.3(a) are approved by the EPA under CWA Section 303(c).

40 C.F.R. Section 131.11(a) requires states and tribes to adopt water quality criteria that protect designated uses. To ensure that the criteria are protective of the designated uses, the WQS should include critical low-flow values that can be used to support implementation of the applicable criteria through such programs as NPDES permitting. The EPA recommended critical low-flow values can be found in the *Water Quality Standards Handbook*, Table 5.1 of Chapter 5.2. Section 2B-4.1.6.3(b) of the Tribal WQS contains a statement regarding development of effluent limitations and directs the reader to the section of the Tribal WQS where critical low-flow values for deriving effluent limitations are

located. The Tribe's critical low-flow values found in Section 2B-9 are consistent with EPA's critical low-flow recommendations. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the critical low-flow values supporting the implementation of the criteria and protecting the designated use in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.13. Therefore, these narrative requirements and the reference for critical low-flows values at 2B-4.1.6.3(b) are approved by the EPA under CWA Section 303(c).

15 CAR 2B-4.1.6.4 Parameters with No Established Numeric Criteria

Section 2B-4.1.6.4 of the Tribal WQS provides alternatives for establishing numeric criteria that are not contained in the Tribal WQS and methods for developing and translating available criteria to reflect site-specific conditions. The Section consists of the following introductory text:

> *For those aquatic life and human health parameters for which no numeric criteria have been established, limitations shall be determined using available references which shall include, but not be limited to, Quality Criteria for Water (Section 304(a)), Federal regulations under Section 307 of the Clean Water Act, and Federal regulations under Section 1412 of the Public Health Service Act as amended by the Safe Drinking Act (Pub. 93-523).*

40 C.F.R. Section 131.11(a) requires the states and tribes to adopt water quality criteria with sufficient parameters to protect the designated uses. In Section 3.13.1 of the *Water Quality Standards Handbook*, EPA recommends including provisions and methods for developing numeric criteria when no criteria are available in the WQS. The Tribal WQS include the documents where numeric criteria are available and methods for developing both aquatic life and human health criteria. This provision allows the Tribe to access all EPA's recommended numeric criteria that have been published under the authority of the CWA and Safe Drinking Water Act. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the provision, to establish the appropriate criteria and protect the designated use in the Tribal WQS, are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(a). Therefore, the provision to establish numeric criteria when no numeric criteria are contained in the Tribal WQS is approved by the EPA under CWA Section 303(c).

Aquatic Life Criteria Development Option

> *(a) Numeric aquatic life criteria shall be developed consistent with EPA's Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, 1985, PB85-227049:*

The aquatic life criteria development option provision is located at 2B-4.1.6.4(a). Section 304(a) of the CWA requires the EPA to develop numeric criteria to protect aquatic life. To comply with this requirement, the EPA developed the *1985 Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses,* which describe an objective, internally consistent, appropriate, and feasible way of deriving national criteria for the protection of aquatic ecosystems. This provision requires the use of the recommended methodology for development of aquatic life criteria. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the provision to establish a method for developing criteria and protecting the designated uses in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(b)(1)(i) and (ii). Therefore, the provision at 2B-4.1.6.4(a) to establish numeric

aquatic life criteria when no numeric criteria are contained in the Tribal WQS is approved by the EPA under CWA Section 303(c).

Human Health Criteria Development Options

(b) Human health noncarcinogen concentrations will be determined using the more recent value of a Reference Dose (RfD) as published by the EPA pursuant to Section 304(a) of the Federal Water Pollution Act as amended or a RfD issued by the EPA as listed in the Integrated Risk Information Systems (IRIS) file. Water quality standards or criteria used to calculate water quality-based assessments, 401 certifications, and effluent limitations to protect human health through the different exposure routes are determined as follows:

1. Fish Tissue Consumption: $WQS = \frac{RfD \times Body\ Weight \times RSC}{FCR \times BAF}$,

where WQS is the water quality standard, RfD is the reference dose, RSC is the relative source contribution, FCR[a] is the fish consumption rate (22.0 grams/day), and BAF[b] is the bioaccumulation factor.

2. Water and Fish Tissue Consumption:

$WQS = \frac{RfD \times Body\ Weight \times RSC}{WCR + (FCR \times BAF)}$,

where WQS is the water quality standard, RfD is the reference dose, RSC is the relative source contribution, WCR is the water consumption rate (assumed to be 2.4 L/day for adults), FCR is the fish consumption rate (22.0 grams/day), and BAF is the bioaccumulation factor.

Footnotes

[a]FCR values are average consumption rates for an 80kg (176 lbs.) adult for a lifetime of the population; alternative FCR values may be used when it is considered necessary to protect localized populations which may be consuming fish at a higher rate. Alternative FCRs must be approved by the EPA.

[b] BAF values are based on EPA publications pursuant to Section 304(a) of the Clean Water Act.

(c) Human health carcinogen concentrations will not result in unacceptable health risk[c] and will be based on a Carcinogenic Potency Factor (CPF). The CPF is a measure of the cancer-causing potency of a substance. Water quality standards or criteria used to calculate water quality based effluent limitations (and for all other purposes of water quality criteria under Section 303(c) of the Clean Water Act) to protect human health through the different exposure routes are determined as follows:

1. Fish Tissue Consumption: $WQS = \frac{Risk \times Body\ Weight}{CPF \times FCR \times BAF}$,

where WQS is the water quality standard, Risk is the risk factor (10^{-6}), CPF is the cancer potency factor, FCR is the fish consumption rate (22.0 grams/day), and BAF is the bioaccumulation factor.

2. Water and Fish Tissue Consumption: $WQS = \frac{Risk \times Body\ Weight}{CPF \times (WCR + (FCR \times BAF))}$,

where WQS is the water quality standard, Risk is the risk factor (10^{-6}), CPF is the cancer potency factor, WCR is the water consumption rate (assumed to be 2.4 L/day for adults),

FCR is the fish consumption rate (22.0 grams/day), and BAF is the bioaccumulation factor.

Footnote
[C] An unacceptable health risk for cancer will be considered to be more than one additional case of cancer per one million people exposed (10^{-6} risk level).

The human health criteria development option provisions are located at 2B-4.1.6.4(b) and (c). The EPA is required by Section 304(a) and 40 C.F.R. Section 131.11(a) to develop and publish numeric criteria and methodologies that are protective of human health. These methodologies recognize two pathways of exposure, consumption of "water and organisms" and ingestion of "water only", as well as two types of categories of pollutants, carcinogens and noncarcinogens. Therefore, the states and tribes are provided four methods for deriving its human health criteria. The Tribe's methodologies with the associated equations and the values for risk level, body weight, and consumption of fish and water are consistent with the EPA's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)* for deriving numeric criteria and the associated 2015 304(a) human health criteria updates.

For the development of noncarcinogenic criteria, the methodology uses a reference dose value, which is the threshold concentration at which noncancer adverse effects occur. The methodology for carcinogenic pollutants uses the cancer potency factor and risk factor. Both methods incorporate a bioaccumulation factor, relative source contribution, body weight, and consumption rates for fish and water.

The Tribal WQS contain equations for developing criteria that are consistent with the EPA's recommendations and will protect human health from noncarcinogenic and carcinogenic pollutants. The associated footnotes a, b, and c contain the values for FCR, BAF, and risk level needed in calculating a criterion protective of human health and are consistent with the EPA's recommendations. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the equations and the values to be used in the equations in the Tribal WQS are consistent with the CWA Section 303(c), 40 C.F.R. Section 131.11(b)(1)(i), and the EPA recommended human health criteria published in 2015. Therefore, the criteria at 2B-4.1.6.4(b) and (c) are approved by the EPA under CWA Section 303(c).

Site-Specific Aquatic Life Criteria Options

(d) Site-specific aquatic life criteria may be established based on natural background conditions, the recalculation procedure, or other scientifically defensible methods. The procedure for developing a site-specific criterion using the recalculation procedure must be consistent with the procedure found in Appendix B of EPA's Interim Guidance on Determination and Use of Water Effects Ratios for Metals, February 1994, EPA No. 823-B-94-001.

The site-specific aquatic life criteria development option provision is located at 2B-4.1.6.4(d). 40 C.F.R. Section 131.11(b)(1) requires states and tribes to adopt numeric water quality criteria that are based on (i) 304(a) guidance, (ii) 304(a) guidance modified to reflect site-specific conditions, or (iii) other scientifically defensible methods.

The EPA's November 1997 memorandum titled *Establishing Site Specific Aquatic Life Equal to Natural Background*[4] recognized that naturally occurring concentrations of pollutants in a waterbody may exceed the national criteria published under Section 304(a) of the CWA. The memorandum states that states and tribes may establish site-specific numeric aquatic life criteria by setting the criterion value equal to the natural background, which is defined as water quality concentration due only to non-anthropogenic sources (i.e., non-manmade) sources. Also, the memorandum establishes three elements needed when establishing site-specific criteria equal to the background conditions: 1) a definition of natural background, 2) a provision that site-specific criteria may be set equal to natural background, and 3) a procedure for determining natural background. The definition for natural background consistent with the definition referenced in the 1997 Memorandum is included in 2B-2(i), and the provision authorizing the development of site-specific criteria based on natural background conditions for aquatic life is included in this provision, 2B-4.1.6.4(d). The third element needed is a procedure for determining natural background conditions. Currently, the Tribe has not developed the procedure for developing the site-specific criterion. However, the procedure can be developed to determine natural background as part of the development of site-specific criterion based on natural background.

To provide guidance on the implementation of 40 C.F.R. Section 131.11(b)(1)(ii), the EPA developed the Recalculation Procedure to take into account relevant differences between the sensitivities of the aquatic organisms in the national dataset and the organisms that occur at a particular site. The Tribal WQS contain the requirement that any site-specific criteria developed using the Recalculation Procedure must be consistent with the current EPA guidance.

The Tribal WQS provide an option for developing site-specific criteria based on other scientifically defensible methods. The provision is consistent with 40 C.F.R. Section 131.11(b)(1)(iii).

The Tribe's approach to include several methods for developing site-specific criteria is consistent with 40 C.F.R. Section 131.11(b)(1). The procedures in the provision at 2B-4.1.6.4(d) are consistent with 40 C.F.R. Part 131 and the CWA and are approved by the EPA under CWA Section 303(c).

Discharger-Specific Options

> *(e) Discharger specific alternative criteria for existing discharges may be established based on the water effect ratio (WER) procedure, the recalculation procedure, or other scientifically defensible methods. The procedure for developing WER must be consistent with EPA's Interim Guidance on Determination and Use of Water Effects Ratios for Metals, February 1994, EPA No. 823-B-94-001 or the most recent edition of this document. The procedure for developing a discharger specific criterion using the recalculation procedure must be consistent with the procedure found in Appendix B of EPA's Interim Guidance on Determination and Use of Water Effects Ratios for Metals, February 1994, EPA No. 823-B-94-001. The discharger must satisfy the following conditions:*
>
> *1. The discharge existed prior to the adoption of the published standards;*
> *2. The discharger performs acute and or chronic bioassay and instream biological assessments and other evaluations as deemed appropriate by DANR;*
> *3. The designated use of the waters is maintained; and*
> *4. The water quality standards of downstream waters are attained and maintained.*

[4] Tudor Davies. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background, Memorandum to Water Management Division Director, Regions 1-10: State and Tribal Water Quality Management Program Directors. November 5, 1997.

The discharger-specific option provision is located at 2B-4.1.6.4(e). The EPA has recognized the value of streamlining procedures for deriving site-specific criteria and has developed detailed guidance for a "performance-based" approach, which relies on a criterion derivation methodology rather than concentration limit for a pollutant. This approach must contain a procedure that has sufficient details and suitable safeguards to ensure predictable, repeatable outcomes. The EPA authorized this approach in the National Toxics Rule (57 FR 60848, December 22, 1992) with the publication of the Water Effect Ratio (WER) and Recalculation Guidance. The Tribe adopted both EPA performance-based approaches by reference.

The Tribe's approach is consistent with 40 C.F.R. Section 131.11(b)(1). The procedures laid out in the provision at 2B-4.1.6.4(e) are consistent with 40 C.F.R. Part 131 and the CWA and are approved by the EPA under CWA Section 303(c).

Public Participation Requirements

> *(f) All site-specific alternative criteria, as described in point 4 of this section will be subject to the public participation requirement for revisions to water quality standards and will be subject to review and action by the EPA. Discharger-specific criteria developed using the WER procedure described in point 5 of this section are translation of a criterion, EPA review, concurrence and public participation is conducted as a part of the NPDES permitting process.*

The details regarding public participation for all site-specific alternative criteria are provided at 2B-4.1.6.4(f). Because the scientific basis of the site-specific criterion developed under the authority of provision 2B-4.1.6.4(d), referred to as "point 4" in the excerpt above, is not the same as the basis of the criterion applicable to all Tribal waters, such a criterion is considered a new criterion. New criteria are subject to the 45-day public notice period as well as the public participation requirements found in 40 C.F.R. Part 25. Revised criteria are also subject to the EPA's review under CWA Section 303(c) and are not effective for CWA purposes until approved by the EPA. 40 C.F.R. Section 131.21(c)(2).

The site-specific criterion using the WER procedure authorized by provision 2B-4.1.6.4(e), referred to as "point 5" in the excerpt above, is considered a translation of a criterion because the scientific basis of the criterion remains the same. The "performance-based" criterion is not subject to the EPA's review under Section 303(c). Since the criterion will be developed in conjunction with an NPDES permit, however, such criteria will be subject to the public participation requirements as well as the EPA's review during permit issuance. The Tribe's public participation procedure and the EPA's review are consistent with *Interim Guidance on Determination and use of Water-Effect Ratios for Metals.*

The Tribe's approach to site-specific criteria is consistent with 40 C.F.R. Section 131.11(b)(1). The procedures laid out in 2B-4.1.6.4(f) are consistent with 40 C.F.R. Part 131 and the CWA and are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5 Water Quality Criteria for Specific Uses

> *The general water quality criteria explained in Section 4 apply to all Cherokee waters. This section describes additional criteria that protects specific designated uses. Unless otherwise specified, parameters which are naturally variable constituents (e.g., temperature, dissolved oxygen, solids) should not be exceeded in more than 10% of samples. On occasion, there will be*

natural events, such as floods or other extreme weather events, that may cause a temporary exceedance(s) of the criteria values. When caused by natural events, such exceedances shall not be viewed as adverse to the designated use. Unless otherwise specified, the duration and frequency of specific chemical parameters identified in this section should be expressed consistent with how they were derived.

For parameters such as dissolved oxygen, solids/turbidity, and temperature, natural variability is an appropriate and reasonable factor to consider in implementation of these criteria. These parameters are affected by other natural parameters and processes, such the effect of temperature on the concentration of dissolved oxygen or the effect of weather on temperature. The EPA considers a 10% variation for natural pollutants would be consistent with the EPA's general frequency recommendations for naturally variable pollutants. This provision is consistent with 40 C.F.R. 131.11(a) and 303(c) of the CWA.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the natural variability provision in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(a). Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.1 Ceremonial Use

The water in this use is suitable for traditional purposes by members of the Eastern Band of Cherokee that involve immersion and intentional or incidental ingestion of water. Unique aspects of the waters designated for the Ceremonial Use such as aquatic life, water quality or quantity, riparian habitat or other unique qualities shall be protected. Riparian buffers may be designated for Ceremonial Use if determine necessary by the Tribe. Criteria specific to the use are as follows:

The first sentence contains the same information as found in Section 2B-3.1, in which the EPA concluded that the ceremonial use was determined to be consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. 131.10(a); therefore, the EPA is approving that sentence under CWA Section 303(c). Accordingly, the EPA is not acting on the first sentence in Section 2B-5.1, as it does not revise the previous statement located in Section 2B-3.1. The remaining sentences in Section 2B-5.1 provide narrative statements to protect the unique aspects of ceremonial waters. These narrative statements are consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. 131.10(a) and approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.1(a) Bacteria

(a) Bacteria: *Escherichia coli shall not exceed a geometric mean of 126 colonies per 100 mL nor shall more than ten percent of the samples examined during any month exceed 410 colonies per 100mL.*

The EPA's 2012 recommended criteria are a culturable E. coli at a geometric mean of 126 colonies per 100 ml and a statistical threshold value (STV) of 410 colonies per 100 ml in any 30-day period with no greater than a ten percent excursion. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes bacteriology density criteria in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(a). Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.1(b) Specific Conductance

> ***(b) Specific conductance**: There shall be no substances added to increase the conductivity above 1000 microhms/cm.*

Additional information is needed to complete the review of the specific conductance criterion. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.1(c) Dissolved Solids

> ***(c) Dissolved solids**: There shall be no substances added to the water to cause the dissolved solids to exceed 750mg/L as a monthly average value, nor to exceed 1500 mg/L at any time.*

Additional information is needed to complete the review of the dissolved solids criteria. The Tribe has been asked for the information. The EPA is not acting on the criteria until the requested information has been received from the Tribe.

15 CAR 2B-5.2 Public Water Supply Use

> *Water in this use is for use as a source of raw water supply for drinking and food processing purposes. The raw water supply shall be such that after the treatment process, it will satisfy the regulations established pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act (Pub.L.93-523). Criteria specific to the use are:*

The first sentence contains the same information as found in Section 2B-3.1, in which the EPA concluded that the public water supply use was determined to be consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a); therefore, the EPA is approving that sentence under CWA Section 303(c). Accordingly, the EPA is not acting on the first sentence in Section 2B-5.2, as it does not revise the previous statement located in Section 2B-3.1. The remaining sentence in Section 2B-5.2 provides a narrative statement to require treatment consistent with the Safe Drinking Water Act requirements. This statement is consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a) and approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.2(a) Bacteria

> ***(a) Bacteria**: Escherichia coli concentrations shall be less than a geometric mean of 50 colonies per 100 mL[a].*

The EPA's 2012 recommended criteria are a culturable E. coli at a geometric mean of 126 colonies per 100 ml and an STV of 410 colonies per 100 ml in any 30-day period with no greater than a ten percent excursion. The Tribe chose to protect its public water supply with a more stringent criterion of 50 colonies per 100 ml rather than the recommended criteria because under a provision of the EPA's Long Term 2 Enhanced Surface Water Treatment Rule the monitoring requirement for the drinking water treatment facility will be reduced.

In 40 C.F.R. Section 131.4(a), the Tribe is authorized to adopt criteria that are more stringent than the national criteria recommended by the EPA. The E. coli bacteria is consistent with 40 C.F.R. Section 131.11(a)(1) and 303(c) of the CWA. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes bacteriology density criteria in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(a). Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.2(a) Footnote

> *[a]As prescribed in 40 C.F.R. 141.701- Source water monitoring.*

The footnote does not establish a legally binding requirement under tribal law nor does it describe a desired ambient condition of a waterbody to support a designated use. Rather, the footnote provides the reference for the technical source of the criteria. Therefore, the footnote is not a WQS subject to EPA review and approval under Section 303(c) of the CWA.

15 CAR 2B-5.2(b) Specific Conductance

> ***(b) Specific Conductance:*** *No substances shall be added to increase the conductivity above 500 microhms/cm.*

The EPA has not recommended a criterion for specific conductance to protect waters designated for the public water supply use. However, the 1972 Report of the Committee on Water Quality Criteria, 1972, recognized that there was a relatively uniform relationship of 1000 mg/l total dissolved solids to 1500 micro-mhos specific conductance for any given waterbody. Applying that relationship to the Secondary Drinking Water Standards for total dissolved solids produces a specific conductance criterion of 750 micro-mhos. The Tribal WQS for specific conductance of 500 microhms/cm [micro-mhos] adopted by the Tribe is more stringent than the criterion developed using this relationship. 40 C.F.R. Section 131.4 allows states and tribes to develop criteria that are more stringent than the recommended criteria. The criterion is protective of the public water supply use and consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a). Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.2(c) Dissolved Solids

> ***(c) Dissolved solids:*** *No substance shall be added to the waters which will cause the dissolved solids to exceed 500 mg/L.*

The Tribe elected to protect the waters designated for the public water supply with a maximum value of 500 mg/L criterion for total dissolved solids. The criterion is consistent with the Safe Drinking Water Act and the implementing regulation at 40 C.F.R. Section 143.3. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the secondary drinking water standard for total dissolved solids in the Tribal WQS is consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11. Therefore, these criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.2(d) Turbidity

> ***(d) Turbidity:*** *No substances shall be added to increase the turbidity above 10 NTU.*

The turbidity criterion is applicable to the raw supply water and not to the treated water. Because of the variability of the treatment processes used, there is no recommended numeric criterion for turbidity. However, the EPA's Safe Drinking Water Program in its Areawide Optimization Program for drinking water treatment facilities recommends that the turbidity of the raw water intake be not greater than 10 NTU. The use of the 10 NTU criterion will allow the Tribal treatment facility to produce drinking water that is consistent with the requirements of the Safe Drinking Water Act at a lower cost. Considering the scientific and technical information related to the EPA's drinking water recommendations, the EPA concludes the use of the turbidity criterion in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Sections 131.11(a)(1) and 131.4. Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.2(e) Threshold Odor

> ***(e) Threshold odor:*** *No substance shall be added which will cause the threshold odor number to exceed 24 (at 60 °C) as a daily average.*

Additional information is needed to complete the review of the threshold odor criterion. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.2(f) Radioactive Substances

> ***(f) Radioactive substance****s: No radioactive substances shall be added which will cause the gross beta activity (in the known absence of Strontium-90 and alpha emitters) to exceed 1000 picocuries per liter at any time.*

Additional information is needed to complete the review of the radioactive substances criteria. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.2(g) Specific Chemical Constituents

> ***(g) Specific Chemical Constituents:*** *In addition to the provisions in Table 2, the following concentrations shall not be exceeded at any time.*

Constituent	***Concentration (mg/L)***
**Barium*	*1*
**2,4 Dichlorophenoxy acetic acid*	*0.7*
***Fluoride*	*2.0*
**Nitrate (NO3-N)*	*10*
***Sulfate*	*250*
**Total Trihalomethanes*	*0.0807*
**1,1,1-trichloroethane*	*0.2*

**Trichloroethylene*	*0.005*
**2,4,5-Trichlorophenoxy propionic acid (Silvex)*	*0.05*

**Maximum contaminant levels (MCLs)*
***Secondary Drinking Water Requirements*

Constituent – Barium

The Tribe numeric barium criterion for the protection of the public water supply is consistent with the national recommended criterion for the protection of human health published in the Quality Criteria for Water, 1986. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the barium criterion in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criterion is approved by the EPA under CWA Section 303(c).

Constituent - 2,4 Dichlorophenoxy acetic acid

The national recommended numeric criterion for 2,4-Dichlorophenoxy acetic acid (Chlorophenoxy Herbicide, CID No. 94757) to protect human health from the consumption of water and organisms is 1.3 mg/L. The Tribal criterion of 0.7 mg/L for the protection of the public water supply use is more stringent than the recommended criterion. 40 C.F.R. Section 131.4(a) provides that states and tribes are authorized to adopt criteria that are more stringent than the national criteria recommended by the EPA. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the 2,4 Dichlorophenoxy acetic acid criterion in the Tribal WQS is consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criterion is approved by the EPA under CWA Section 303(c).

Constituents - Fluoride and Sulfate

The Tribe adopted fluoride and sulfate criteria that are consistent with the National Secondary Drinking Water Regulation. Considering the scientific and technical information supporting the EPA's Drinking Water regulations, the EPA concludes the use of the fluoride and sulfate criteria in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

Constituents - Nitrate (NO_3-N), Total Trihalomethanes, 1,1,1-trichloroethane, Trichloroethylene, and 2,4,5-Trichlorophenoxy propionic acid (Silvex)

Under the authority of the National Primary Drinking Regulations, the EPA established enforceable "maximum contaminant levels" (MCLs) for drinking water that do not present a risk to human health from the consumption of drinking water. The criteria for the five constituents above are consistent with the MCLs published by the EPA. Considering the scientific and technical information supporting the EPA's drinking water recommendations, the EPA concludes the use of the Nitrate (NO_3-N), Total Trihalomethanes, 1,1,1-trichloroethane, Trichloroethylene, and 2,4,5-Trichlorophenoxy propionic acid (Silvex) criteria in the Tribal WQS are consistent with CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.3 Recreation Use

> *Waters in this use are suitable for recreational purposes involving prolonged contact and the risk of ingesting water in quantities sufficient to pose a health hazard such as swimming, snorkeling, or water skiing. The waters may also be suitable for other uses not listed. Criteria specific to the use are as follows:*

Since this provision is not exactly the same as the narrative description of the recreation use in Section 2B-3.1, the EPA concluded this additional information is consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a) and is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.3(a) Bacteria

> ***(a) Bacteria:*** *Escherichia coli shall not exceed a geometric mean of 126 colonies per 100 mL nor shall more than ten percent of the samples examined during any month exceed 410 colonies per100 mL.*

The EPA's recommended criteria are a culturable E. coli at a geometric mean of 126 colonies per 100 mL and an STV of 410 colonies per 100 mL in any 30-day period with no greater than a ten percent excursion. The Tribal criteria are consistent with the EPA's recommendation. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the E. coli criteria in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a)(1). Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.3(b) Specific Conductance

> ***(b) Specific Conductance:*** *There shall be no substances added to increase the conductivity above 1000 microhms/cm.*

Additional information is needed to complete the review of the specific conductance criterion. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.3(c) Dissolved Solids

> ***(c) Dissolved Solids:*** *There shall be no substances added to the water to cause the dissolved solids to exceed 750 mg/L as a monthly average value, nor to exceed 1500 mg/L at any time.*

Additional information is needed to complete the review of the dissolved solids criterion. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.4 Cold-Water Aquatic Habitat

> *The waters in this use support the cold-water aquatic communities described at 2B-3.1(d)(1)-(3) Criteria specific to the use are as follows:*

This provision simply refers back to the relevant location describing cold-water aquatic habitat. Therefore, the introduction to 15 CAR 2B-5.4 is consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a) and is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(a) Dissolved Oxygen

> ***(a) Dissolved oxygen:*** *A minimum concentration of 6.5 mg/L as a daily average and 5 mg/L as an instantaneous minimum shall be maintained at all times.*

The EPA's dissolved oxygen recommendation for the protection of cold-water aquatic life is 6.5 mg/L for a duration of 30 days. The Tribe elected to protect its cold-water aquatic life with 6.5 mg/L as a daily average. The implementation of the dissolved oxygen criterion as a daily average is more stringent than the EPA's recommended 30-day average. Also, the Tribe adopted a minimum criterion of 5.0 mg/L, which is more stringent than the recommended criterion of 4.0 mg/L. 40 C.F.R. Section 131.4 allows states and tribes to implement the criterion using more stringent procedures than the recommended procedures. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the dissolved oxygen criteria in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Sections 131.11(a)(1) and 131.4. Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(b) Temperature

> ***(b) Temperature:*** *Water temperature shall not be increased by more than 0.5 °C as a result of discharge and in no case be increased to exceed 20 °C (68 °F), the required temperature necessary to support trout habitat.*

Provision 2B-5.4(b) establishes temperature criteria to protect cold-water species such as rainbow trout, brook trout, and stonerollers. The EPA recommends the use of two upper values, one to control the maximum temperature and the second to limit the weekly average increase above the natural background temperature, which protect the aquatic life from sudden exposure to extreme change in temperature. The tribal criterion of 20° C establishes a maximum temperature, while the weekly maximum criterion of 0.5° C above natural background controls the sudden increase of temperature. The criteria are consistent with the EPA's recommended values. Also, the criteria are consistent with the criteria used by the state of North Carolina to protect its cold-water streams. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the temperature criteria in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a)(1). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(c) Turbidity

> ***(c) Turbidity:*** *The turbidity in the receiving water shall not exceed 10 NTU in streams, lakes and reservoirs.*

The EPA recommended numeric criterion for turbidity was published in the Report of the National Technical Advisory Committee to the Secretary of the Interior dated April 1, 1968. The recommended criterion is for turbidity in the receiving waters, due to the discharge of wastes, and should not exceed 10 Jackson units in cold-water streams. Since the publication of the criterion, the method for measuring

turbidity has changed from the Jackson Candle Method to the use of a nephelometer method, which express the amount of turbidity as Nephelometric Turbidity Units (NTU). Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the turbidity criterion in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(a)(1). Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(d) Phenolic Compounds

> ***(d) Phenolic Compounds**: No substances shall be added which will cause the phenolic content to exceed 300 µg/L (expressed as phenol).*

The Tribe elected to protect the CAH Use with the more stringent recommended criterion for the prevention of organoleptic effects rather than criteria based on toxicity to humans. The Tribe's criterion is consistent with the EPA's 304(a) recommended criterion for prevention of organoleptic effects from phenols of 300 µg/l and is more stringent than the recommended human health criterion of 4000 µg/L. 40 C.F.R. Section 131.4 allows states and tribes to develop criteria that are more stringent than the recommended criteria. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the phenolic compounds criterion in the Tribal WQS is consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Sections 131.11(a)(1) and 131.4. Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(e) Specific Conductance

> ***(e) Specific Conductance:** There shall be no substances added to increase the conductivity above 1000 microhms/cm.*

Additional information is needed to complete the review of the specific conductance criterion. The Tribe has been asked for the information. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.4(f) Solids

> ***(f) Solids:** No substance shall be added to the waters which will cause the dissolved solids to exceed 750 mg/L as a monthly average value nor exceed 1500 mg/L at any time. Neither total dissolved solids nor total suspended solids shall be changed to the extent that the indigenous aquatic community is adversely affected. No settleable solids shall be added that may adversely alter the stream bottom.*

The Tribe included in its Tribal WQS criteria to control dissolved, suspended, and settleable solids. For dissolved solids, the Tribal WQS includes both numeric and narrative criteria.

Additional information is needed to complete the review of the numeric criteria for dissolved solids criterion. The Tribe has been asked for the information. The EPA is not acting on the numeric criteria until the requested information has been received from the Tribe.

For additional protection, the Tribal WQS contain narrative criteria that would prevent any adverse impacts on the aquatic community from dissolved or suspended solids and prevent adverse impacts of settleable solids on the stream bottom. The narrative criteria for the solids establish the desired water

quality goals for Tribal waters. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the narrative criteria for dissolved, suspended, and settleable solids in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(2). Therefore, the two narrative criteria statements are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.4(g) Ammonia

> ***(g) Ammonia:*** *Ammonia criteria shall be in accordance with EPA recommendations as expressed on pages 40, 41, 42, 44, 45, 46, and 49 of Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013 (April 2013, EPA-822-R-13-001). Such information is hereby incorporated by reference. Where mussels in the order Unionoida are absent at a site, ammonia criteria may be calculated on a site-specific basis. Any such site-specific criteria shall be in accordance with the equations and tables expressed on pages 228, 229, 231, 235, 236, 239, and 240 in Appendix N of the document referenced above.*

The ammonia criteria specified in Section 2B-5.4(g) of the Tribal WQS are consistent with the EPA's 2013 criteria recommendation for ammonia. Currently, there are no known mussels in tribal water. However, the Tribe included a provision for the development of site-specific criteria should mussels or any other aquatic life requiring a higher level of protection be found in tribal waters. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the ammonia criteria and the associated provisions in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.5 Warm-Water Aquatic Habitat

> *Waters in this use are intended for fishing and the propagation of fish, aquatic life, and wildlife. The following parameters and associated criteria shall apply for the protection of productive warm water aquatic communities, fowl, and wildlife.*

Since this provision is not exactly the same as the narrative description of the warm-water aquatic life use in Section 2B-3.1, the EPA concluded this additional information is consistent with the Section 101(a)(2) goals of the CWA and 40 C.F.R. Section 131.10(a) and is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.5(a) Dissolved Oxygen

> ***(a) Dissolved oxygen:*** *A minimum concentration of 5.0 mg/L as a daily average and 4 mg/L as an instantaneous minimum shall be maintained at all times.*

The EPA's 1986 guidance (Gold Book) for dissolved oxygen (DO) presents DO concentrations for both salmonid and non-salmonid waters. The Gold Book states:

> In situations where criteria conditions are just maintained for considerable periods, the criteria represent some risk of production impairment. This impairment would probably be slight but would depend on innumerable other factors. If slight production impairment or a small but undefinable risk of moderate impairment is unacceptable, then one should use the "no production

impairment" values given in the document as a mean and the "slight production impairment" values as minima.

For non-salmonid waters, early life stages:
moderate production impairment DO=5 mg/L (used as an average)
limit to avoid acute mortality DO=4 mg/L (used as a minimum)

For non-salmonid waters, other life stages:
slight production impairment DO=5 mg/L (used as an average)
moderate production impairment DO=4 mg/L (used as a minimum)

The Tribe's warm water aquatic habitat designated use protects non-trout waters. By providing a daily average of 5.0 mg/L with a minimum of 4.0 mg/L, working as a "cap" on the lower end of the DO criteria, the waters will have to be 6.0 mg/L (a value associated with undefinable risk of production impairment or no production impairment depending on the life stage present) as often as they are 4.0 mg/L to derive the average of 5.0 mg/L. Additionally, during the time in which critical conditions are expected to occur (summer season with high temperatures/low flow) the organism will not be in an early life stage where higher DO levels are more critical. Therefore, a daily average of 5.0 mg/L, with a minimum of 4.0 mg/L, is protective.

The state of North Carolina, which shares water bodies with the Tribe, protects its non-trout waters, Class C, with dissolved oxygen criteria of not less than a daily average of 5.0 mg/L with a minimum instantaneous value of not less than 4.0 mg/L. Six Region 4 states have adopted the dissolved oxygen criteria of daily average of 5.0 mg/L and an instantaneous minimum of 4.0 mg/L to protect the aquatic life in their warm-water streams.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the oxygen criteria in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(2). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.5(b) Specific Conductance

> ***(b) Specific conductance:*** *There shall be no substances added to increase the conductivity above 1000 microhms/cm.*

Additional information is needed to complete the review of the specific conductance criterion. The Tribe has been asked for the information needed to complete the review. The EPA is not acting on the criterion until the requested information has been received from the Tribe.

15 CAR 2B-5.5(c) Solids

> ***(c) Solids:*** *No substance shall be added to the waters which will cause the dissolved solids to exceed 750 mg/L as a monthly average value nor exceed 1500 mg/L at any time. Neither total dissolved solids nor total suspended solids shall be changed to the extent that the indigenous aquatic community is adversely affected. No settleable solids shall be added that may adversely alter the stream bottom.*

The Tribe included in its Tribal WQS criteria to control dissolved, suspended, and settleable solids. For dissolved solids the Tribal WQS includes both numeric and narrative criteria.

Additional information is needed to complete the review of the dissolved solids criterion. The Tribe has been asked for the information. The EPA is not acting on the numeric criteria until the requested information has been received from the Tribe.

For additional protection, the Tribal WQS contain narrative criteria that would prevent any adverse impacts on the aquatic community from dissolved or suspended solids. Also, narrative criteria to prevent adverse impacts of settleable solids on the stream bottom are contained in the provisions to address solids. The narrative criteria statements for the solids establish the desired water quality goals for Tribal waters. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the narrative criteria for dissolved, suspended, and settleable solids in the Tribal WQS are consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(2). Therefore, the two narrative criteria statements are approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.5(d) Phenolic Compounds

> ***(d) Phenolic compounds:*** *No substances shall be added which will cause the phenolic content to exceed 300 µg/L (expressed as phenol).*

The Tribal WQS elected to protect the WAH Use with the more stringent recommended criterion for the prevention of organoleptic effects rather than criteria based on toxicity to humans. The recommended criterion for phenols is 300 µg/L. The Tribal criterion is consistent with EPA's recommended organoleptic criterion and more stringent that the recommended human health criterion. 40 C.F.R. Section 131.4 allows states and tribes to develop criteria that are more stringent than the recommended criteria. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the phenolic compounds criterion in the Tribal WQS is consistent with the CWA Section 303(c) and the implementing regulations at 40 C.F.R. Sections 131.11(a)(1) and 131.4. Therefore, the criterion is approved by the EPA under CWA Section 303(c).

15 CAR 2B-5.5(e) Ammonia

> ***(e) Ammonia:*** *Ammonia criteria shall be in accordance with EPA recommendations as expressed on pages 40, 41, 42, 44, 45, 46, and 49 of Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013 (April 2013, EPA-822-R-13-001). Such information is hereby incorporated by reference. Where mussels in the order Unionoida are absent at a site, ammonia criteria may be calculated on a site-specific basis. Any such site-specific criteria shall be in accordance with the equations and tables expressed on pages 228, 229, 231, 235, 236, 239, and 240 in Appendix N of the document referenced above.*

The ammonia criteria specified in Section 2B-5.5(e) of the Tribal WQS are consistent with the EPA's 2013 criteria recommendation for ammonia. Currently, there are no known mussels in tribal water. However, the Tribe included a provision for the development of site-specific criteria should mussels or any other aquatic life requiring a different level of protection be found in tribal waters. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the use of the ammonia criteria and the associated provisions in the Tribal WQS are consistent with the CWA

Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6 Antidegradation Policy and Implementation Plan

The Tribe has adopted two sections related to antidegradation into its Tribal WQS, Antidegradation Policy and Antidegradation Implementation Plan. The EPA's water quality regulation at 40 C.F.R. Section 131.12 requires states and authorized tribes to adopt an antidegradation policy and develop methods for implementing that policy that are at a minimum, consistent with paragraphs (a) and (b) of 40 C.F.R. Section 131.12.

Within its Antidegradation Policy section, the Tribe lays out four levels of protection through the Tribe's antidegradation provisions, as well as a provision which speaks to thermal discharges. The Tribe's policy structure is similar to that of the federal regulations at 40 C.F.R. Section 131.12(a) and will be discussed more specifically below.

The Tribe's Antidegradation Implementation Plan (TAIP) provides more detail on how the Tribal Antidegradation Policy will be implemented. The TAIP further describes the four tiers of antidegradation protections provided for in the policy, identifies who is responsible for conducting antidegradation reviews, activities subject to antidegradation review, and finally, provides detailed procedures and expectations pertaining to the four tiers regarding how an antidegradation review should be completed for the respective tiers.

Since the Tribal WQS were adopted and submitted to the EPA after the effective date of the Final Rule[5], the EPA's review considered the most recent regulatory expectations for antidegradation policy and implementation methods, along with other existing guidance available to the EPA on the topic of antidegradation[6].

15 CAR 2B-6.1 Antidegradation Policy

Following the introductory statement "The antidegradation policy of the Eastern Band of Cherokee Indians is as follows," the Tribal WQS lay out five policy provisions. Provision 1(a) contains the policy statement for protection of existing uses, commonly referred to as "Tier 1" waters. Provisions 1(b) and (d) contain policy statements related to two categories of high quality waters on Tribal lands, "Tier 2" and "Tier 2.5" waters. Provision 1(c) contains the policy statement regarding consistency with activities authorized under Section 316 of the CWA. Provision 1(e) contains the policy statement which addresses the final portion of high quality waters in Tribal lands, Outstanding Reservation Resource Waters, or "Tier 3" waters. Each provision is described in more detail below.

Introductory Statement at 15 CAR 2B-6.1

This statement provides clarity that the following five provisions are the provisions of the Tribe's antidegradation policy and is consistent with CWA Section 303(c) and the implementing regulations at 40 C.F.R. Section 131.12. Therefore, the statement is approved by the EPA under CWA Section 303(c).

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[5] 80 Fed. Reg. 51020, *et seq.* (August 21, 2015). Water Quality Standards Regulatory Revisions; Final Rule.

[6] WQS Handbook. Accessed on 10/31/18 at: https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter4.pdf. See also Preamble and Final Rule text located in August 21, 2015 Federal Register.

15 CAR 2B-6.1(a)

> *(a) Existing in-stream water uses and the level of water quality and quantity necessary to protect the existing uses shall be maintained and protected.*

This provision is consistent with the federal antidegradation provision at 40 C.F.R. Section 131.12(a)(1). The concept of maintaining and protecting existing uses, as contained in the Tribe's adopted language, is consistent with CWA Section 303(c) and the requirements of the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the statement is approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.1(b)

Provision 2B-6.1(b) contains five sentences that provide the Tribe's policy statement for the "Tier 2" portion of the high quality waters in the Tribal lands. The first, second, and fourth sentences are consistent with the federal regulation at 40 C.F.R. Section 131.12(a)(2), the third sentence provides additional clarity relative to base levels of water quality protection, and the fifth sentence makes it clear that all antidegradation reviews are conducted on a parameter-by-parameter (PBP) basis. All five sentences are described in more detail below with the accompanying rationale for approving each provision.

The first sentence of provision 1(b) at 2B-6.1 provides:

> *Where the quality and quantity of waters exceeds levels established by sections 2B-3, 2B-4, and 2B-5 of these rules as necessary to support their uses, including the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality and quantity shall be maintained and protected, unless the Tribe finds* **[** [7] **]** *that allowing lower water quality or quantity is necessary to accommodate important economic or social development in the area in which the water are located.*

Prior to the inclusion of the same listing of designated uses included in 40 C.F.R. Section 131.12(a)(2), the Tribe has included "established by sections 2B-3, 2B-4, and 2B-5 of these [regulations] as" and "their uses, including." The addition of these phrases provides additional clarity as to how expectations of water quality are measured when determining whether such levels are exceeded. The EPA concludes that these additional terms do not affect the consistency of this portion of the sentence with that found at 40 C.F.R. Section 131.12(a)(2).

Additionally, the term "Tribe" is substituted for "State," which is consistent with the federal regulation which includes both state and tribal entities in its definition of "state."

Lastly, the Tribe's first sentence of provision 2B-6.1(b) does not include the phrase "after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process," in the location indicated by a bold pair of brackets with a footnote in the excerpt above. However, the EPA considered provisions 2B-6.2.1 and 2B-6.2.5(c) through 2B-6.2.5(f) and determined that those provisions are consistent with the federal requirement that intergovernmental coordination and public participation be included in the Tribe's Tier 2 implementation methods.

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[7] This bracket highlights a place in the Tribe's text that is described further in the EPA's analysis of this provision.

The concept of maintaining and protecting the water quality which "exceeds levels necessary" to support the CWA 101(a)(2) goal uses, as contained in the Tribe's adopted language for the first sentence of provision 1(b), is at least as stringent as the requirements of the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. As summarized above, the concept of completing "intergovernmental coordination and public participation," while not included in the Tribe's adopted language for the first sentence of provision 2B-6.1(b), is addressed in the above-mentioned implementation provisions of the TAIP and is consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

The second sentence of provision (b) at 6.1 is as follows:

> *Any lower water quality or quantity allowed shall assure water quality adequate to protect existing uses fully.*

The EPA concludes that the meaning of this sentence is at least as stringent as the requirements set out in 40 C.F.R. Section 131.12(a)(2). The concept of "protecting existing uses fully" as contained in the Tribe's adopted language for the second sentence of provision (b), is consistent with CWA Section 303(c) and the requirements of the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

The third sentence of provision (b) at 6.1 is as follows:

> *In no case may water quality or quantity be degraded below the base levels set for the protection of the surface water designated uses.*

The EPA finds that the concept included here by the Tribe is at least as stringent as the language in 40 C.F.R. Sections 131.10 and 131.12, considering that the Tribe's adopted language in the third sentence of provision (b) at 2B-6.1 discusses designated uses as opposed to existing uses. Therefore, the Tribe's adopted language in the third sentence of provision (b) at 2B-6.1 is consistent with CWA Section 303(c) and the requirements of the EPA's designated use and antidegradation regulations at 40 C.F.R. Sections 131.10 and 131.12. Therefore, the statement is approved by the EPA under CWA Section 303(c). If the Tribe makes revisions to their designated uses in the future, the EPA encourages the Tribe to work closely with the EPA in advance of Tribal adoption of the regulation to ensure future changes meet the requirements for designated uses.

The fourth sentence of provision (b) at 6.1 is as follows:

> *The Tribe shall assure that the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control shall be achieved.*

The EPA concludes that the meaning of this Tribal provision is at least as stringent as the federal requirement. The concept of assuring that "the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control" as contained in the Tribe's adopted language for the fourth sentence of provision (b) is consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

Lastly, the Tribe included a fifth sentence in provision (b) as follows:

All antidegradation reviews are conducted on a parameter-by-parameter basis.

While not contained within the specific policy paragraph of the federal regulation with the other sentences, the concept of identifying which method a state or tribe will use for identifying waters for protection is located at 40 C.F.R. Section 131.12(a)(2)(i). The Tribe's choice to conduct antidegradation reviews on a parameter-by-parameter basis is one of two approaches to antidegradation protection provided for at 40 C.F.R. Section 131.12(a)(2)(i) and is, therefore, consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.1(c)

(c) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Federal Clean Water Act.

Provision 2B-6.1(c) contains the policy statement regarding consistency with activities authorized under Section 316 of the CWA. The provision's language is at least as stringent as that provided for at 40 C.F.R. Section 131.12(a)(4) and is therefore consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.1(d)

(d) All waterbodies on Tribal Reserve Lands shall be considered Tribal Resource Waters (TRW). The TRW classification dictates that water quality or quantity shall be maintained and protected. New point or nonpoint source discharges or expansion of existing point source discharges shall not be allowed unless the permit applicant has demonstrated to the satisfaction of the DANR that no significant adverse effect to water quality will occur.

This provision contains the policy statement for another portion of the high quality waters on Tribal lands, Tribal Resource Waters (TRW). The definition of TRWs was determined to be consistent with the EPA's regulations and is discussed as part of the definitions section of this decision document.

The adopted language does not specifically track to an equivalent federal antidegradation "Tier" level. However, the Tribe's policy decision to incorporate a "Tier 2.5" into its antidegradation procedures is consistent with application of antidegradation reviews to waters with levels exceeding those necessary to support the applicable CWA Section 101(a)(2) uses and to ensure such water quality is maintained and protected, with an option for a public process to allow for any potential lowering of water quality. The EPA's *Water Quality Standards Handbook* Section 4.2 describes "Tier 2.5" waters as "an application of the antidegradation policy that has implementation requirements that are more stringent than for "Tier 2" (high-quality waters), but somewhat less stringent than the prohibition against any lowering of water quality in "Tier 3" (ONRWs)." The Tribe's provision 1(d) also makes it clear that new point or nonpoint source discharges, or expansion of existing point source discharges are not allowed unless "no significant adverse effect to water quality will occur." In EPA's 1994 memo titled *Interpretation of*

Federal Antidegradation Regulatory Requirement[8], the EPA discussed that WQS apply to both point and nonpoint sources. The policy statement for TRWs, as contained in the Tribe's adopted language for provision 1(d), is consistent with CWA Section 303(c) and the requirements of the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.1(e)

> *(e) Where high quality waters are classified as Outstanding Reservation Resource Waters (ORRW), the existing water quality or quantity shall be maintained and protected, and no discharges shall be allowed.*

Provision 2B-6.1(e) addresses the final portion of high quality waters in Tribal lands, Outstanding Reservation Resource Waters (ORRW). The definition of ORRW was determined to be consistent with the EPA's regulations and is discussed as part of the definitions section of this decision document.

With regard to ORRW, the language adopted by the Tribe is refined to either be tribally-specific or more descriptive than the language provided by the federal "Tier 3" provision at 40 C.F.R. Section 131.12(a)(3). The phrase of the Tribe's language mirrors the intention of "outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance" to identify important Tribal waters which will receive the level of protection associated with the federal "Tier 3" provision. The addition of the term "existing" seems to provide additional clarity which does not impact consistency of the Tribe's provision with the federal requirements. With regard to the phrase "or quantity" the addition of this phrase has the effect of providing additional protections that can be applied when considering varied activities which impact water quality. While not explicitly addressed in the federal regulation, a prohibition on dischargers is consistent with the federal expectation for Tier 3 waters. The policy statement for ORRWs, as contained in the Tribe's adopted language for provision 2B-6.1(e), is consistent with CWA Section 303(c) and consistent with, or more stringent than, the requirements of the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, the provision is approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2 Antidegradation Implementation Plan

Following the policy section, the Tribe has included Section 2B-6.2. As described above, the TAIP further describes the four tiers of antidegradation protections provided for in the policy, identifies who is responsible for conducting antidegradation reviews, activities subject to antidegradation review, and finally, provides detailed procedures and expectations pertaining to the four tiers with regard to how an antidegradation review should be completed for the respective tiers.

Introductory Paragraph at 15 CAR 2B-6.2

> *Acting under authority delegated by the Eastern Band of Cherokee Indians Tribal Council, the DANR shall implement the water quality standards, including the antidegradation policy, by establishing and maintaining controls on the introduction of pollutants in Cherokee Waters. The DANR shall provide an opportunity for public involvement during the development and any*

[8] Tudor Davies. Interpretation of Federal Antidegradation Regulatory Requirement, Memorandum to Water Management Division Director, Regions 1-10. February 22, 1994.

subsequent revisions of these implementation methods and shall make the methods available to the public.

The first sentence clarifies which entity in the Tribal government, the DANR, will implement the WQS, including the Tribal antidegradation policy. The DANR will also provide an opportunity for public involvement during all revisions to the antidegradation implementation methods and ensure the information on methods is available to the public. The second sentence is consistent with the language contained at 40 C.F.R. Section 131.12(b) and clarifies the roles for the public process activity, therefore it is consistent with the intent of the federal regulations. The introductory paragraph is consistent with CWA Section 303(c) and the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.1 Definitions of Water Body Tiers

The antidegradation policy will be implemented utilizing tiers of water quality protection. All Cherokee waters are classified into the appropriate protection tier, as determined by the DANR with appropriate public involvement.

(a) Tier 1 Waters
Tier 1 waters are those waters that are known to be impaired by pollution for a given parameter and in which the existing water quality or quantity does not support designated uses. For other pollutants or pollution, the water will be classified pursuant to 2B-6.2.1(b).

(b) Tier 2 Waters

(1) Tier 2 waters are those waters in which the water quality meets or exceeds the mandatory minimum levels to support the Clean Water Act goal of propagation of fish, shellfish, and wildlife, and recreation in and on such waters.

(2) All Cherokee waters are considered Tier 2 waters unless the water is classified as an ORRW (Tier 3) or as a TRW (Tier 2.5).

(c) Tier 2.5 Waters
Tier 2.5 waters are high-quality cold waters supporting exceptional levels of biodiversity and are classified as TRWs, as defined in section 2B-6.1.

(d) Tier 3 Waters
Tier 3 waters are high quality waters that constitute ORRWs, as identified in section 2B-6.1. Tier 3 water bodies will not be allowed to experience any degradation.

Section 2B-6.2.1 clarifies the Tribe's antidegradation policy is implemented using these tiers, identifies which tier of protection applies to which waters on Tribal lands, and highlights that tier selection includes public involvement. The Tribe has chosen to specify Tier 2 waters to include water quality that "meets or exceeds" those levels specified in the provision. The implementation procedures discuss the additional Antidegradation Review that is required when it is determined that assimilative capacity exists for parameter(s) of concern. Therefore, Tiers 1, 2, and 3 are consistent with the federal regulatory requirements at 40 C.F.R. Section 131.12. By further clarifying how these tiers are assigned to specific waterbodies the Tribe has made clear how the policy will be implemented by putting waterbodies in the appropriate categories. Additionally, the Tribe has chosen to include a category for Tier 2.5 waters.

Because the Tier 2.5 is a more stringent application of the Tier 2 provisions, it is also consistent with 40 C.F.R. Section 131.12. Therefore, the introductory language and four corresponding tiers of antidegradation adopted by the Tribe in Section 2B-6.2.1 are consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.2 and 6.2.3 Responsibility and Activities Subject to Antidegradation Review

Sections 2B-6.2.2 and 2B-6.2.3 were adopted as follows:

> *2B-6.2.2 Responsibility*
>
> *It is the responsibility of any individual, business, or Tribal program that proposes a discharge from a point source to Cherokee waters, including TRW waters, to contact the DANR and to apply for an Antidegradation Review pursuant to this section. An Antidegradation Review Report is required for all proposed new or expanding discharges into Tier 2 and Tier 2.5 waters. The antidegradation review will include the potential impact on water quality from a proposed activity, considering factors such as the type of activity and magnitude of the discharge, as described in the implementation sections 2B-6.2.3 through 2B-6.2.7.*
>
> *2B-6.2.3 Activities Subject to Antidegradation Review*
>
> *(a) Point Source Pollution*
> *The EBCI Water Quality Administrative Rules and Antidegradation Policy and Implementation methods contained herein shall be applied to all Cherokee Waters and all discharges that require a federal permit or license and are subject to Tribal certification under section 401 of the CWA (e.g. CWA section 402 permits, CWA section 404 permits, and Federal Energy Regulatory Commission licenses). Such activities include, but are not limited to, wastewater discharges, industrial discharges, urban storm water containment discharges, and other discharges from pipes or other discreet conveyances that may affect the quality of Cherokee waters. Coverage under any nationwide permit for an activity that could degrade receiving waters shall not remove that activity from compliance with this document.*
>
> *(b) Non-Point Source Pollution*
> *Non-point source pollution activities in which an Antidegradation Review will be conducted include, but are not limited to, large earth disturbing activities which fall outside the requirements of needing a EPA NPDES construction storm water permit, water management system design, wastewater management system design, and solid waste management system design of infrastructure that may convey pollution to Cherokee Waters.*

Section 2B-6.2.2 makes it clear who completes the antidegradation reviews, specifically highlighting that such reviews must be completed for Tier 2 and 2.5 waters, as well as some general introduction to what should be contained in the review. The substance of the review requirements generally referenced in Section 2B-6.2.2 will be reviewed in the EPA's analysis of Sections 2B-6.2.3 through 2B-6.2.7. Section 2B-6.2.3 further describes what activities are subject to antidegradation reviews. Discharges subject to certification under 401 of the CWA include CWA Section 402 permits issued by the EPA, CWA 404 permits, and Federal Energy and Regulatory Commission licenses. Thus, the scope of applicability regarding both the waters and the discharges that are subject to the Tribe's antidegradation

implementation methods is consistent with the regulatory scope of the CWA, i.e., discharges regulated under the CWA into waters of the United States. Similarly, the Tribe has outlined examples of nonpoint source pollution which is subject to antidegradation review when such activities "may convey pollution to Cherokee waters." Therefore, the language in Sections 2B-6.2.2 and 2B-6.2.3 establish general applicability provisions for the Tribe's antidegradation implementation methods that are consistent with CWA Section 303(c) and consistent with the EPA's antidegradation regulations at 40 C.F.R. Section 131.12. Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.4 Tier 1 Antidegradation Reviews

Tier 1 waters are those waterbodies that are known to be impaired by a pollutant based on the results of the tribe's monitoring data record. Where these waters are subject to a Pollution Minimization Plan (PMP), the Tier 1 level of protection is implemented through the NPDES permit issuance process. New or expanding discharges are not allowed in Tier 1 waters if there is no assimilative capacity for the pollutant(s) for which the waterbody is listed. Tier 1 waterbodies are pollutant specific, and this designation does not relieve a permit applicant from the requirements of an Antidegradation Review Report for this and other non-listed pollutants proposed to be discharged.

This language establishes methods for implementing the Tribe's "Tier 1" antidegradation policy statement, that are at a minimum, consistent with the Tribe's policy and with 40 C.F.R. Section 131.12(a), as required by 40 C.F.R. Section 131.12(b) and consistent with CWA Section 303(c). Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.5 Tier 2 Antidegradation Reviews

For activities covered by 2B-6.2.3 and within Tier 2 waters, the following describes the process for a Tier 2 Antidegradation Review Report. If an application for a new or expanded discharge for a NPDES permit is submitted for a Tier 2 water or a nonpoint source activity affecting a Tier 2 water is proposed and if verification is made by the DANR that the waterbody has water quality greater than that defined by the all of the designated uses in the standards such that available assimilative capacity for the parameter(s) of concern does exist then the following additional antidegradation review would be initiated.

(a) To verify that a waterbody is a high-quality water for a parameter of concern to initiate a Tier 2 antidegradation review, the DANR must evaluate:
   1. if and to what degree water quality exceeds the level necessary to protect designated uses,
   2. if and to what degree water quality will be lowered, and
   3. if designated uses will be maintained and protected by applying the standards outlined in sections 2B-4 and 2B-5.

In multiple discharge situations, the aggregate predicted lowering of water quality must be allocated among the dischargers.

(b) An alternatives analysis must be conducted by the applicant to determine whether alternatives (e.g., water recycle or reuse, use of other discharge locations, connection to other wastewater treatment facilities, or any treatment options) would minimize or eliminate

the lowering of water quality in a technologically feasible and economically viable manner. The conclusion will either be that no practicable alternatives exist or at least one practicable alternative exists. A socio-economic analysis, as described in 2B-6.2.5(c), will be conducted for any alternatives selected that utilize some of the assimilative capacity. If the alternatives utilizes no assimilative capacity, no socio-economic analysis is needed.

(c) The DANR will evaluate whether a proposed discharge that will lower water quality and for which there are no practicable alternatives is necessary for important economic or social development. For this to be determined, several economic and social factors must be considered. These factors include, but are not limited to, increased production for greater Tribal economic gain, housing, and correction of environmental or public health concern. The Tribe will use the review procedures prescribed in the Interim Economic Guidance for Water Quality Standards Workbook[9]. If the DANR deems that the socio-economic value is not of sufficient value to warrant a degradation of water quality, the degradation will not be approved. If, after review and response to public comments regarding the proposed activity, the Tribe determines that activity is socially and/or economically important, lowering of the water quality will be allowed. If no socioeconomic value can be attributed to the proposed activity, it shall not be approved.

(d) If after the DANR reviews the analysis of alternatives and determines that the lowering of water quality can be minimized or eliminated the applicant can either: implement one of the practicable alternatives and determine whether a lowering is necessary for important social and economic development, or, proceed without an analysis of important social or economic development if a non-degrading alternative is selected for implementation. If the analysis identifies affordable treatment options that would prevent the discharge from occurring, the request to discharge will be denied. If the proposed discharge does support important social and economic development, either when a practicable alternative is implemented or absent, then the DANR may decide to grant the request for lowering of water quality provided water quality sufficient to protect designated uses is maintained and provided the decision is subject to public participation and comment.

(e) A public review shall be conducted of the application, the proposed activity that will lower water quality, and the Tribe's draft antidegradation review. Public notice shall be made using reasonably available outreach tools such as tribal and/or local newspaper legal notices, and/or web-based media. Comments shall be sought to guide a final review decision. Following an appropriate public review period as required by applicable law, the review period will close. Response to each comment shall occur prior to the approval or disapproval of a permit or license application to discharge, and these responses shall be documented with the final Antidegradation Review Report.

(f) In addition to providing the opportunity to comment during public review, the Tribe shall coordinate as needed with other tribal departments and governments, and federal agencies such as US Fish and Wildlife Service, US Army Corps of Engineers, and US Environmental Protection Agency.

(g) Once the Tier 2 antidegradation review is completed, documentation of its final decision will either be included in the rationale for the point-source permit and/or tribal administrative

[9] EPA 823-B-95-002, March 1995.

record related to the non-point source activity. The DANR will maintain records of the evaluation and decision of all activities that have been reviewed under these conditions.

Section 2B-6.2.5 outlines the methods the Tribe will use to protect its Tier 2 waters. As discussed earlier for the "Tier 2" policy statement, the Tribe intends to apply Tier 2 on a parameter-by-parameter approach. This language establishes methods for implementing the Tribe's "Tier 2" antidegradation policy statement that are, at a minimum, consistent with the Tribe's policy and with 40 C.F.R. Section 131.12(a), as required by 40 C.F.R. Section 131.12(b) and consistent with CWA Section 303(c). Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.6 Tier 2.5 Antidegradation Reviews

Tier 2.5 level of protection applies to waters defined in 2B-6.2.1(c) Storm water and other nonpoint source runoff including that from agriculture or permitted discharge is allowed in the waters provided there will be no adverse water quality effects deemed significant by the Tribe, as determined through consultation with the EPA.

(a) The DANR, in cooperation with the EPA, will review an application for a proposed discharge to TRW waters to determine the impact on water quality and ensure that the discharge can be considered.

(b) Once it has been determined that the discharge can be considered, it must be determined whether the discharge will result in a discernable change in water quality. If the proposed discharge would cause degradation, then the discharge must be denied. Since only discharges that would result in the maintenance and protection of existing water quality are permitted, no further antidegradation review is necessary. Any allowable permit would then proceed through the permitting process and allow for public participation, as described in the Tier 2 Antidegradation Review Section 2B-6.2.5

(c) Once it has been determined that the nonpoint source activity can be considered, it must be determined whether the activity will result in a discernable change in water quality. If the proposed activity would cause degradation, then the activity must be denied. Since only activities that would result in the maintenance and protection of existing water quality are allowed, no further antidegradation review is necessary. Any allowable activity would then proceed through the antidegradation review process and allow for public participation, as described in Section 2B-6.2.5.

(d) Once the Tier 2.5 antidegradation review is completed, documentation of its final decision will either be included in the rationale for the permit and/or tribal administrative record. The DANR will maintain records of the evaluation and decision of all activities that have been reviewed under these conditions.

Section 2B-6.2.6 outlines the methods by which the Tribe will protect its TRWs, or "Tier 2.5" waters. These methods for implementing the Tribe's "Tier 2.5" antidegradation policy statement are, at a minimum, consistent with the Tribe's policy and with 40 C.F.R. Section 131.12(a), as required by 40 C.F.R. Section 131.12(b) and consistent with CWA Section 303(c). Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-6.2.7 Tier 3 Antidegradation Reviews

The Tier 3 level of protection applies to waterbodies classified as ORRWs. ORRW waters are protected by applying the standards of the TRW waters which require maintenance of existing water quality and additionally by not allowing any point-source discharges. No permanent permitted discharges of any kind shall be allowed in these waters, however a discharge may be allowed on a short-term and temporary basis as long as there is no associated degradation of water quality.

Section 2B-6.2.7 outlines the methods by which the Tribe will protect its ORRW, or "Tier 3" waters. These methods ensure that the water quality of ORRW will be maintained and protected. Section 2B-6.2.7 establishes methods for implementing the Tribe's "Tier 3" antidegradation policy statement that are, at a minimum, consistent with the Tribe's policy and with 40 C.F.R. Section 131.12(a), as required by 40 C.F.R. Section 131.12(b) and consistent with CWA Section 303(c). Therefore, these provisions are approved by the EPA under CWA Section 303(c).

15 CAR 2B-7 Sampling and Analyses

Section 2B-7 provides the sampling and analysis methodology for determining compliance with the Tribal WQS.

The sampling and analysis methodology as well as the associated footnotes do not address designated uses, water quality criteria, or antidegradation or establish new water quality standards. Therefore, the sampling and analysis methodologies are not WQS subject to the EPA review and approval under Section 303(c) of the CWA.

15 CAR 2B-8 Mixing Zones

In order to provide a reasonable opportunity for the mixture of discharges and receiving waters, mixing zones may be established in the area of the discharge. Any designated mixing zone shall be approved by the DANR in consultation with the EPA. When a mixing zone is established, the mixing zone shall not be an area of waste treatment nor shall it interfere with or impair the existing uses of the waterbody. The size of the mixing zone shall be minimized, as determined by the DANR, and shall be based upon applicable critical flow conditions. The chronic water quality criterion for the mixing zone parameters of concern will not apply in these regions, except that the zone will be subject to the conditions established in accordance with this section. Mixing zone limits will be defined on a case-by-case basis upon consideration of the magnitude and character of the waste discharge, and the size and character of the receiving waters. Methods and guidelines for mixing zone policies are prescribed in accordance with the EPA's Water Quality Standards Handbook, Second Edition (1993) and the EPA's Technical Support Document for Water Quality-based Toxics Control, March 1991, EPA/505/2-90-001. For the protection of the receiving waters uses and to maintain conformity with NPDES permit requirements the following guidelines and restrictions are followed to protect the designated uses of Tribal waters.

a. In order to protect human health, mixing zones are not allowed when they would endanger public health and welfare or be for bacteria (e.g., escherichia coli).

b. In order to protect aquatic life, mixing zones are not allowed when a pollutant in a discharge would attract biota, the mixing zone would result in undesirable aquatic organisms or a dominance of nuisance species outside of the mixing zone, there is a reasonable expectation that a discharge would adversely affect a federally-listed endangered or threatened aquatic species, its habitat, or a proposed or designated critical habitat, the mixing zone would not allow safe passage of aquatic organisms when passage would otherwise be unobstructed, or the mixing zone would not allow for the protection and propagation of a balanced native aquatic community in and on the water body.

c. In order to protect both human health and aquatic life, mixing zones are not allowed when a discharge would not be predicted to, or does not produce, adequate mixing at the point of discharge; or a discharge would be to a waterbody where multiple discharges interact if the combined mixing zone would impair the waterbody outside the mixing zone. The DANR may prohibit or limit mixing zones in Tribal waters that may be considered a significant nursery habitat for resident species.

d. The size of the mixing zone shall be kept to a minimum and may be determined on an individual project basis considering biological, chemical, engineering, hydrological, and physical factors. The factors include, but are not limited to, the type and character of receiving waters, outfall configuration, effluent characteristics, extent of mixing/dilution, specific aquatic resource concerns (e.g. sensitive areas or species, ceremonial uses). Federal resource agencies will be consulted as appropriate.

Mixing zones are areas where complete mixing of discharge with receiving waters does not occur instantaneous or rapidly. The federal WQS regulation at 40 C.F.R. Section 131.13 provides states and tribes the discretionary authority to include mixing zone provisions in their WQS. When the mixing zones provisions are included, they are subject to the EPA's review and approval or disapproval pursuant to Section 303(c) of the CWA. The EPA's mixing zones policy is based on a premise that surface water quality criteria can be exceeded under limited circumstances without causing unacceptable toxicity and impairment of a water's designated uses.

The EPA's WQS regulation does not specify requirements for mixing zones. However, like water quality criteria adopted by states and tribes, mixing zones must be based on sound scientific rationale and protect the designated use. To ensure consistency with the CWA, the EPA provides guidance that addresses necessary aspects of mixing zones in the *Water Quality Standards Handbook*: EPA-820-B-94-004, 2014 and *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991. Key aspects of the EPA's guidance to ensure that mixing zones are consistent with use protection include location considerations to protect critical resource areas, size considerations, and stipulations on in-zone quality that include provisions to protect aquatic and human health.

The conditions provided in the Tribal WQS mixing zone provision are consistent with the EPA's guidance for applying mixing zones. The EPA concluded Section 2B-8 establishes conditions that:

- Protect existing uses and designated uses, aquatic life, nursery or critical habitat, federally listed threaten or endangered species, native aquatic communities, and public health and welfare;
- Require mixing zones to be develop on a case-by-case using the information for the discharge, such as character of receiving waters, outfall configuration, effluent characteristics, extent of

mixing/dilution, specific aquatic resource concerns (e.g. sensitive areas or species, ceremonial uses);

- Require the minimization of the size of the mixing zone;
- Require the use of the critical low flow;
- Provide safe passage;
- Require the use of methods and guidance found in *Technical Support Document for Water Quality-based Toxics Control*, and the *Water Quality Handbook,* for developing the individual mixing zone; and
- Prohibit undesirable aquatic organisms or a dominance of nuisance species outside of the mixing zone.

Therefore, the Tribe's approach to mixing zones is consistent with 40 C.F.R. Section 131.13, which allows adoption of mixing zones by tribes, and is approved by the EPA pursuant to Section 303(c) of the Act. The procedures laid out in this provision are consistent with 40 C.F.R. Part 131 and the CWA and are approved by the EPA pursuant to Section 303(c) of the Act.

15 CAR 2B-9 Low Flow

a. When deriving permit limitations to protect surface waters for the designated uses and purposes, the following stream flows shall be utilized:

Criteria	***Stream Flow***
Acute Aquatic Life	*1-day, 10-year flow (1Q10)*
Chronic Aquatic Life	*7-day, 10-year flow (7Q10)*
Human Health- Carcinogens	*Harmonic mean flow*
Human Health- Non-carcinogens	*Harmonic mean flow*

b. If critical flows data is not available, the flow may be used when authorized by the Tribe using the methods outlined in EPA's Technical Support Document for Water Quality-based Toxics, EPA/505/2-90-001, March 1991.

40 C.F.R. Section 131.11(a) requires states and tribes to adopt water quality criteria that protect designated uses. To ensure that the criteria are protective of the designated uses, the WQS should include critical low-flow values for implementation of the applicable criteria through such programs as NPDES permitting. The EPA recommended critical low-flow values can be found in the *Water Quality Standards Handbook,* Table 5.1 of Chapter 5.2. Section 2B-4.1.6.3(b) of the Tribal WQS contains a statement regarding development of effluent limitations and directs the reader to the section of the Tribal WQS where critical low-flow values for deriving effluent limitations are located. Table 9 provides low-flow criteria values for each type of criteria as well as a method for developing critical low-flow values when data is not available.

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the critical low-flow values to support the implementation of the criteria and protect the designated use in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.13. Therefore, these narrative requirements and the reference for flows values are approved by the EPA under CWA Section 303(c).

15 CAR 2B-10 National Pollutant Discharge Elimination System

Section 2B-10 provides information concerning the tribal procedures and functions of the Tribe in the issuance of National Pollutant Discharge Elimination System Permits to permittees on tribal lands. These procedures do not establish a legally binding requirement under tribal law nor do they describe a desired ambient condition of a waterbody to support a particular designated use. Therefore, the informational statements are not WQS subject to the EPA review under CWA Section 303(c).

15 CAR 2B-11 Clean Water Act Section 401 Certification

Section 2B-11 authorizes the Department of Agriculture and Natural Resources to implement the Tribe's Section 401 Certification Authority received as part of the TAS authorization in the Cherokee Code. Also, it provided information regarding responsibilities and procedures for the Section 401 certification program. The information included in this Section does not establish a new WQS nor does it describe a desired condition or instream level of protection for tribal waters. Therefore, these provisions are not WQS subject to the EPA review under CWA Section 303(c).

15 CAR 2B-12 Underground Injection Control Class 5 Wells

Section 2B-12 is the basis of the Underground Injection Control Class 5 Wells Program on tribal lands. It provides instructions for the Class 5 well inventory and inspection as well as requirements for the operation of a well. This information does not establish a new WQS nor does it describe a desired ambient condition of a waterbody to support a designated use. Therefore, the informational statements are not WQS subject to the EPA review under CWA Section 303(c).

15 CAR 2B-13 Stormwater Controls

Section 2B-13 authorizes the Department of Agriculture and Natural Resources to implement its Stormwater Control Program (SCP) and describes the requirements and procedures for the Tribe's SCP. This Section does not establish a new WQS nor describe a desired ambient condition of a waterbody to support a designated use. Therefore, the SCP statements are not WQS subject to the EPA review under CWA Section 303(c).

15 CAR 2B-14 Source Water Protection

Section 2B-14 provides the authority to the Department of Agriculture and Natural Resources to establish and implement the Tribe's Source Water Protection Program to protect public water supply sources and private water wells. Also, it defines the purpose, protection area, and management procedures. This authorization and the associated information do not describe a desired ambient condition of a waterbody to support a designated use nor an establish a new WQS. Therefore, the informational statements are not WQS subject to the EPA review under CWA Section 303(c).

15 CAR 2B-15 Enforcement

Section 2B-15 provides the authority to the Department of Agriculture and Natural Resources to enforce the Tribal WQS. This enforcement statement does not describe a desired ambient condition of a waterbody to support a particular designated use. Therefore, the enforcement provisions are not WQS subject to the EPA review under CWA Section 303(c).

EBCI WQS Appendix A. Toxic Substance Numeric Criteria

Appendix A includes aquatic life and human health criteria, which are contained in two tables. Table 1 contains numeric aquatic life criteria, formulas used to calculate aquatic life criteria when applicable, and an informational footnote. Table 2 provides the numeric criteria for the protection of human health and a footnote providing information concerning methylmercury.

Toxic substance criteria for the protection of aquatic life

Compound	*CAS No.*	*Criteria*	
		Acute (µg/L)	*Chronic (µg/L)*
Arsenic	*7440382*	*340.0*	*150.0*
Chromium (VI)	*18540299*	*16.0*	*11.0*
Mercury	*7439976*	*1.4*	*0.77*
Selenium	*7782492*		*3.1*
Chlorine, total residual	*7782505*	*19.0*	*11.0*
Cyanide	*57125*	*22*	*5.2*
Acrolein	*107028*	*3.0*	*3.0*
Aldrin	*309002*	*3.0*	
g-BHC	*58899*	*0.95*	
Chlordane	*57749*	*2.4*	*0.0043*
4-4' DDT	*50293*	*1.1*	*0.001*
Dieldrin	*60571*	*0.24*	*0.056*
a-Endosulfan	*959988*	*0.22*	*0.056*
b-Endosulfan	*33213659*	*0.22*	*0.056*
Endrin	*72208*	*0.086*	*0.036*
Heptachlor	*76448*	*0.52*	*0.0038*
Heptachlor Epoxide	*1024573*	*0.52*	*0.0038*
Carbaryl	*63252*	*2.1*	*2.1*
Chloropyrifos	*2921882*	*0.083*	*0.041*
Demeton	*8085483*		*0.1*
Diazinon	*333415*	*0.17*	*0.17*
Guthion	*86500*		*0.01*
Malathion	*121755*		*0.1*
Methoxychlor	*72435*		*0.03*
Mirex	*2385855*		*0.001*
Parathion	*56382*	*0.065*	*0.013*
Total Polychlorinated Biphenyls (PCBs)			*0.014*
Toxaphene	*8001352*	*0.73*	*0.0002*

The Tribal WQS include numeric criteria for 27 pollutants for which the EPA has published fresh water aquatic life 304(a) criteria recommendations. These criteria are contained in Appendix A, Table 1. The Tribal WQS are consistent with the Agency's criteria recommendations. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the aquatic life criteria for the 27 pollutants that protect the designated use in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

Equations for calculating metals criteria to protect aquatic life

Compound	***CAS No.***	***Criteria[10]***	
		Acute (µg/L)	***Chronic (µg/L)***
Cadmium	*7440439*	*exp{0.9789[ln(Hardness)]-3.866} (1.136672-[(ln(hardness)(0.041838)])*	*exp{0.7977[ln(Hardness)]-3.909} (1.101672-[(ln(hardness)(0.041838)])*
Chromium (III)	*16065831*	*exp{0.8190[ln(hardness)]+3.7256} (0.316)*	*exp{0.8190[ln(hardness)]+0.6848}(0.860)*
Copper	*7440508*	*exp{0.9422[ln(Hardness)]-1.700}(0.96)*	*exp{0.8545[ln(hardness)]-1.702}(0.96)*
Lead	*7439921*	*exp{1.273[ln(Hardness)]-1.460} (1.46203-[ln(hardness)(0.145712)])*	*exp{1.273[ln(Hardness)]-4.705} (1.46203-[(ln(hardness))(0.145712)])*
Nickel	*7440020*	*exp{0.8460[ln(Hardness)]+2.255}(0.998)*	*exp{0.8460[ln(Hardness)]+0.0584}(0.997]*
Silver	*7440224*	*exp{1.72[ln(Hardness)]-6.59}(0.85)*	
Zinc	*7440666*	*exp{0.8473[ln(Hardness)]+0.884}(0.978)*	*exp{0.8473[ln(Hardness)]+0.884}(0.986)*

[10] Criteria for all metals are expressed as dissolved metals

Table 1 in Appendix A includes the above equations needed for the development of metals criteria. The equations are used to calculate the hardness dependent criteria and express the criteria as the dissolved form. Except for the copper equations, the equations for the development of the hardness dependent metals criteria are consistent with the most current EPA 304(a) criteria recommendations.

The EPA currently recommends the development of site-specific criteria for copper using the Biotic Ligand Model (BLM), which is detailed in the EPA's *Aquatic Life Ambient Freshwater Quality Criteria -Copper*, 2007, 822-R-07-001, February 2007. Tribal waters have very low hardness about 6-10 mg/l and a pH range of 6 to 8 in a small geographical area with no mining and industrial facilities. Therefore, the variability of the hardness from waterbody to waterbody is very small. The comparison of the two methods is contained in the memo from Katherine Snyder, Ph.D. dated August 30, 2017. The analysis concluded that "[I]n low hardness waters in the southeastern United States, hardness-based numbers will provide more protection of aquatic life than BLM-based numbers." The Tribe elected to provide a higher level of protection to its waters and adopted the EPA 2007 recommendation of the hardness equations to develop its criteria for copper. 40 C.F.R. Section 131.4(a) provides that "States (as defined in Section 131.3) are responsible for reviewing, establishing, and revising water quality standards. As recognized by Section 510 of the Clean Water Act, States may develop water quality standards more stringent than required by this regulation."

Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the equations used to develop the criteria and protect the designated use in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the equations are approved by the EPA under CWA Section 303(c).

Equation for Calculating Pentachlorophenol Criteria

Compound	*CAS No.*	*Criteria*	
		Acute µg/l	*Chronic µg/l*
Pentachlorophenol	*87865*	*exp{1.005(pH)-4.869}*	*exp{1.005 (pH)-5.134}*

The Tribal WQS contain equations for the development of pH dependent criteria for pentachlorophenol. The equations are consistent with the EPA's 304(a) recommendation for pentachlorophenol. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the equation used to develop the criterion and protect the designated use in the Tribal WQS is consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the equation is approved by the EPA under CWA Section 303(c).

Toxic substances criteria for the protection of human health.

Compound	*CAS No.*	*Water and Organisms (µg/L)*	*Organisms Only (µg/L)*
Antimony	*7440360*	*5.6*	*640*
Arsenic	*7440382*	*0.018*	*0.14*
Copper	*7440508*	*1300*	
Methyl Mercury	*22967926*	*0.3 mg/kg[a]*	*0.3 mg/kg[a]*
Nickel	*7440020*	*610*	*4600*

Compound	CAS No.	Water and Organisms (µg/L)	Organisms Only (µg/L)
Thallium	7440280	0.24	0.47
Cyanide	57125	4	400
Asbestos	1332214	7,000,000 fibers/L	
2,3,7,8-TCDD-Dioxin	1746016	5.0×10^{-9}	5.1×10^{-9}
Acrolein	107028	3	400
Acrylonitrile	107131	0.061	7.0
Benzene	71432	2.1	58
Bromoform	75252	7.0	120
Carbon Tetrachloride	56235	0.4	5.0
Chlorobenzene	108907	100	800
Chlorodibromomethane Dibromochloromethane	124481	0.8	21
Chloroform	67663	60	2000
Dichlorobromomethane Bromodichloromethane	75274	0.95	27
1,2-Dichloroethane	107062	9.9	650
1,1-Dichloroethylene	75354	300	20000
Trans-1,2-Dichloroethylene (DCE)	156605	100	4000
1,2-Dichloropropane	78875	0.9	31
1,3-Dichloropropene	542756	0.27	12
Ethylbenzene	100414	68	130
Methyl Bromide Bromomethane	74839	100	10000
Methylene Chloride Dichloromethane	75092	20	1000
1,1,1-Trichloroethane	71556	10000	200000
1,1,2-Trichloroethane	79005	0.55	8.9
1,1,2,2-Tetrachloroethane	79345	0.2	3
Tetrachloroethylene	127184	10	29
Toluene	108883	57	520
Trichloroethylene (TCE)	79016	0.6	7
Selenium	7782492	170	4200
Zinc	7440666	7400	26000
Benzidine	92875	0.00014	0.011
Benzo(a) Anthracene	56553	0.0012	0.0013
Benzo(a) Pyrene	50328	0.00012	0.00013
Benzo(b) Fluoranthene	205992	0.0012	0.0013
Benzo(k) Fluoranthene	207089	0.012	0.013
Bis 2-Ethylhexyl Phthalate	117817	0.32	0.37
Butylbenzyl Phthalate	85687	0.10	0.10
2-Chloronaphthalene	91587	800	1000
Chrysene	218019	0.12	0.13
Dibenzo(a),(h) Anthracene	53703	0.00012	0.00013
1,2-Dichlorobenzene	95501	1000	3000

Compound	CAS No.	Water and Organisms (µg/L)	Organisms Only (µg/L)
1,3-Dichlorobenzene	541731	7	10
1,4-Dichlorobenzene	106467	300	900
1,2,4,5-Tetrachlorobenzene	95943	0.03	0.03
Pentachlorobenzene	608935	0.1	0.1
3,3-Dichlorobenzidine	91941	0.049	0.15
Methoxchlor	72435	0.02	0.02
Diethyl Phthalate	84662	600	600
Dimethyl Phthalate	131113	2000	2000
Di-n-Butyl Phthalate	84742	20	30
2,4-Dinitrotoluene	121142	0.049	1.7
1,2-Diphenylhydrazine	122667	0.03	0.2
Fluoranthene	206440	20	20
Fluorene	86737	50	70
Hexachlorobenzene	118741	0.000079	0.000079
Hexachlorobutadiene	87683	0.01	0.01
1,2,4-Trichlororbenzene	120821	0.071	0.076
Toxaphene	8001352	0.00070	0.00071
Indeno (1,2,3-cd) Pyrene	193395	0.0012	0.0013
Isophorone	78591	34	1800
Chlordane	57749	0.00031	0.00032
a-Endosulfan	959988	20	30
b-Endosulfan	33213659	20	40
Endosulfan Sulfate	1031078	20	40
Polychlorinated Biphenyls (PCBs)		0.000064	0.000064
Vinyl Chloride	75014	0.022	1.6
2-Chlorophenol	95578	30	800
2,4-Dichlorophenol	120832	10	60
2,4-Dimethylphenol	105679	100	3000
2-Methyl-4,6-Dinitrophenol	534521	2	30
Dintrophenols	25550587	10	1000
2,4-Dinitrophenol	51285	10	300
3-Methyl-4-Chlorophenol	59507	500	2000
Pentachlorophenol	87865	0.03	0.04
Phenol	108952	4000	300000
2,4,5-Trichlorophenol	95954	300	600
2,4,6-Trichlorophenol	88062	1.5	2.8
Acenaphthene	83329	70	90
Anthracene	120127	300	400
Bis(2-Chloroethyl) Ether	111444	0.030	2.2
Bis(2-Chloro-1-Methylethyl) Ether	108601	200	4000
Bis(Chloromethyl) Ether	542881	0.00015	0.017
Hexachlorocyclopentadiene	77474	4	4
Hexachloroethane	67721	0.1	0.1
Nitrobenzene	98953	10	600

Compound	*CAS No.*	*Water and Organisms (µg/L)*	*Organisms Only (µg/L)*
N-Nitrosodimethylamine	*62759*	*0.00069*	*3.0*
N-Nitrosodi-n-Propylamine	*621647*	*0.0050*	*0.51*
N-Nitrosodiphenylamine	*86306*	*3.3*	*6.0*
Pyrene	*129000*	*20*	*30*
Aldrin	*309002*	*0.00000077*	*0.00000077*
Alpha-Hexchlorochyclohexane (HCH)	*319846*	*0.00036*	*0.00039*
Beta-Hexchlorocyclohexane (HCH)	*319857*	*0.0080*	*0.014*
Gamma-Hexachlorocyclohexane gamma-BHC (Lindane)	*58899*	*4.2*	*4.4*
Hexchlorocyclohexane (HCH)-Technical	*608731*	*0.0066*	*0.010*
DDT p,p'-Dichlorodiphenyltrichlorethane	*50293*	*0.000030*	*0.000030*
DDE p,p'-Dichlorodiphenyldichloroethylene	*72559*	*0.000018*	*0.000018*
DDD p,p'-Dichlorodiphenyldichloroethane	*72548*	*0.00012*	*0.00012*
Dieldrin	*60571*	*0.0000012*	*0.0000012*
Endrin	*72208*	*0.03*	*0.03*
Endrin Aldehyde	*7421934*	*1*	*1*
Heptachlor	*76448*	*0.0000059*	*0.0000059*
Heptachlor Epoxide	*1024573*	*0.000032*	*0.000032*
Chlorophenoxy Herbicide (2,4-D)	*94757*	*1300*	*12000*
Chlorophenoxy Herbicide (2,4,5-TP) [Chlorophenoxy]	*93721*	*100*	*400*

[a] *The fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 22 gm/day.*

The Tribal WQS include numeric human health criteria for 108 pollutants for which the EPA has 14 published water and organism as well as organism only 304(a) criteria recommendations. These criteria are contained in Appendix A, Table 2. The Tribal WQS are consistent with the Agency's criteria recommendations. Considering the scientific and technical information supporting the EPA's recommendations, the EPA concludes the criteria and the associated footnote protecting the designated uses in the Tribal WQS are consistent with the CWA Section 303(c) and 40 C.F.R. Section 131.11(b)(1)(i). Therefore, the criteria are approved by the EPA under CWA Section 303(c).

EBCI WQS Appendix B. Section 401 Certification Application

Appendix B provides a template for the Section 401 application. This is informational guidance and does not describe a desired ambient condition of a waterbody to support a particular designated use or establish a new WQS. Therefore, these provisions are not WQS subject to the EPA review under CWA Section 303(c).

EBCI WQS Appendix C. Section 401 Certification Process Flow Charts

Appendix C contains flow charts for processing a Section 401 application. This is informational guidance and does not a desired ambient condition of a waterbody to support a particular designated use or establish a new WQS. Therefore, these provisions are not WQS subject to the EPA review under CWA Section 303(c).

EBCI WQS Appendix D. UIC Class V Well Inventory Information

Appendix D provides a template to be used in developing an inventory of UIC Class V wells on tribal lands. This is informational guidance and does not a desired ambient condition of a waterbody to support a particular designated use or establish a new WQS. Therefore, these provisions are not WQS subject to the EPA review under CWA Section 303(c).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

APR 6 2016

Mr. Jay Zimmerman
Director
Division of Water Resources
North Carolina Department of Environment
and Natural Resources
1617 Mail Service Center
Raleigh, North Carolina 27604

Dear Mr. Zimmerman:

The United States Environmental Protection Agency has completed its review of the State of North Carolina's 2007 – 2015 Triennial Review of Water Quality Standards (WQS). All of the Triennial Review revisions were approved for adoption by the North Carolina Environmental Management Commission on November 13, 2014, and became effective for state purposes on January 1, 2015. In a letter dated May 1, 2015, the State of North Carolina Department of Justice certified that the WQS revisions, Surface Water and Wetland Standards (15A NCAC 02B .0200) had been duly adopted according to state law. On May 15, 2015, the EPA received the original signed package for review from the Division of Water Resources.

The EPA's decision on these revisions is detailed in the enclosed document, *Decision Document of the United States Environmental Protection Agency Review of North Carolina's 2007 - 2015 Triennial Review of Changes to Surface Waters and Wetlands Standards 15A NCAC 02B .0200 Under Section 303(c) of the Clean Water Act*. The approved portion of the new and revised WQS adopted by the State include upgrades to toxic criteria to meet national recommendations for arsenic, chromium III, chromium VI, copper, lead, nickel, silver and zinc and a scientifically defensible alternative for cadmium for non-trout waters. The EPA is also approving the removal of a numeric Action Level for iron and the numeric criterion for manganese (Water Supply waters only). Both parameters will be controlled through the use of a narrative WQS.

The EPA is disapproving revisions relating to biological confirmation for toxics in assessment and three revisions relating to the implementation of the hardness based equations for metals under the National Pollutant Discharge Elimination System (NPDES) permits, including the use of action levels, the use of a low end hardness cap, and the use of the median of the 8-digit hydrologic unit for determining hardness when developing NPDES permits. These revisions are inconsistent with the requirements of 40 C.F.R. Part 131 and the Clean Water Act (CWA) and therefore, are disapproved. The EPA recommends that NCDENR remove these provisions during the next rulemaking.

In addition to the EPA's review pursuant to section 303 of the CWA, section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse

modification of designated critical habitat of such species. The EPA's decision to approve the revisions contained in the enclosed decision document is subject to the results of consultation under section 7 of the ESA with the USFWS and NMFS office. The EPA will notify NCDENR of the results of the section 7 consultation upon completion of the action.

We would like to commend you and your staff on the completion of this Triennial Review and your continued efforts in environmental protection for the State of North Carolina. In particular, we would like to acknowledge the technical expertise and the hard work of Connie Brower shown during the development of these WQS.

Should you have any questions regarding the EPA's action today, please contact me at (404) 562-8357 or have a member of your staff contact Ms. Lisa Perras Gordon at gordon.lisa-perras@epa.gov or (404) 562-9317.

Sincerely,

Heather McTeer Toney
Regional Administrator

Enclosure

cc: Connie Brower
NCDWR WQS

Jeff Manning
NCDWR WQS

Tom Belnick
NCDWR NPDES

Jeff Poupart
NCDWR NPDES

Decision Document of the United States Environmental Protection Agency Review of North Carolina's 2007-2015 Triennial Review of Changes to Surface Waters and Wetlands Standards 15A NCAC 02B .0200 Under Section 303(c) of the Clean Water Act

Introduction

In a letter dated May 4, 2015, from S. Jay Zimmerman, Director, Division of Water Resources (DWR), North Carolina Department of Environment and Natural Resources, to Heather McTeer Toney, Regional Administrator of the Environmental Protection Agency's (EPA's) Region 4 Office, the DWR submitted new and revised water quality standards (WQS) for review under section 303(c) of the Clean Water Act (CWA or Act). In a letter dated May 1, 2015, the State of North Carolina Department of Justice certified that the WQS revisions, Surface Water and Wetland Standards (15A NCAC 02B .0200) had been duly adopted according to State law. The revisions addressed in this decision document were approved for adoption by the North Carolina Environmental Management Commission on November 13, 2014, and became effective for state purposes on January 1, 2015. The EPA received the original signed package for review from DWR on May 15, 2015.

Clean Water Act Requirements

Section 303 of the CWA, 33 U.S.C. § 1313, requires states to establish WQS and to submit any new or revised standards to the EPA for review and approval or disapproval. The EPA's implementing regulations require states to adopt water quality criteria that protect the designated use. See 40 C.F.R. 131.11(a). Such criteria must be based on a sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. Id. For waters with multiple use designations, the criteria shall support the most sensitive use. Id. In addition, the EPA's regulations require that in establishing criteria, a state shall consider WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of WQS of downstream waters. See 40 C.F.R. 131.10(b). A state's submission of water quality criteria must include (1) the methods used and analyses conducted to support WQS revisions, (2) water quality criteria sufficient to protect the designated uses and (3) a certification by the State Attorney General or other appropriate legal authority within the state that the WQS were duly adopted under state law. See 40 C.F.R. 131.6.

Endangered Species Act Requirements

In addition to the EPA's review under section 303 of the CWA, section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species. With regard to consultation activities for section 7 of the ESA, the EPA Region 4 concluded that the WQS the Agency approved, would either have no effect or may affect, but not likely to adversely affect, threatened and endangered species or their designated critical habitat. The EPA also concluded that they had no discretion for some provisions of the approved WQS because they were derived to protect human health and the EPA has no discretion to revise an otherwise approvable human health criterion to benefit listed species.

The EPA's Decision Summary

The EPA commends the DWR for making revisions to its WQS to bring them up-to-date with long overdue changes. In particular, the State should be commended for adopting the EPA's national recommended criteria developed under CWA section 304(a) or other scientifically justified criteria for toxic metals as well as for adopting both acute and chronic values for those metals. The EPA's 304(a) recommendations provide an extensive technical basis and justification for how the recommended aquatic life criteria adequately protect aquatic life uses. The methodologies have been subject to public review, as have the individual criteria guidance documents. The methodologies have also been reviewed by EPA's Science Advisory Board (SAB) of external experts. While some of the methodologies that the EPA relied on in reaching this decision may be 20 years old, based on data and information considered over the years, EPA considers the science underpinning those recommendations to still be sound.

The goals of the CWA in section 101(a)(3) state that, "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In the California Toxics Rule (CTR), 65 Fed. Reg. 31,682 (page 31,683) (May 18, 2000), the EPA reaffirmed that in order to achieve the goals and objectives of the Act, toxic pollutants must be controlled. Adopting scientifically defensible water quality standards for toxics establishes water quality goals for State and EPA programs, including providing a precise basis for developing water quality-based effluent limits for National Pollutant Discharge Elimination System (NPDES) permitting under section 402 of the Act; monitoring, assessment, development of Total Maximum Daily Loads (TMDLs); protecting coastal water quality improvement; protecting aquatic ecosystems and human health; and providing endpoints for nonpoint source controls and overall ecological protection. See 65 Fed. Reg. (page 31683). In addition, these standards will be used in other applications such as the State's authority to review federal permits under section 401 of the Act and reviews under the section 404(b)(1) guidelines. North Carolina's action fulfills the statutory requirement under section 303(c)(2)(B) of the CWA.

In particular, the EPA notes that for the first time, the DWR will have scientifically defensible criteria in place for all purposes under the Act for copper, hexavalent chromium, silver and zinc. Additionally, the value for lead, previously almost twenty times higher than recommended, will be consistent with national recommendations. Similarly, the State will now have updated criteria for cadmium in trout waters and nickel consistent with national recommendations. The EPA also supports the added provision to the State's new metal criteria to use the dissolved fraction and to allow the inclusion of water effect ratios directly into the criteria for metals.

The EPA welcomed the opportunity to work with the DWR to address those areas where the State sought to tailor its WQS to conditions within the state rather than to adopt the EPA Section 304(a) national recommendations, as allowed under 40 C.F.R. 131.11. Specifically, the EPA is approving DWR's alternate chronic and acute cadmium criteria for non-trout waters, the removal of iron criteria for aquatic life protection, and the removal of manganese as an organoleptic criteria for waters designated as water supply (WS). The EPA notes that protections will remain in place for all parameters through the use of a narrative water quality standard. Each of these provisions are being approved today as detailed below.

The new and revised WQSs that EPA is approving today are now the applicable water quality standards for all purposes under the CWA, including but not limited to monitoring, assessment, and NPDES permitting. Water quality criteria are intended to protect the designated use (40 C.F.R. 131. 2 and 131.11). Further, 40 C.F.R. 131.2 clarifies that state WQS are to:

"...protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (the Act). "Serve the purposes of the Act" (as defined in section 101(a)(2) and 303(c) of the Act) means that water quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife, recreation in and on the water, and agricultural, industrial, and other purposes including navigation.

Such standards serve the dual purposes of establishing the water quality goals for a specific water body and serve as the regulatory basis for the establishment of water-quality-based treatment controls and strategies beyond the technology-based levels of treatment required by sections 301(b) and 306 of the Act."

Throughout this triennial review, the EPA has repeatedly and clearly articulated to North Carolina, both verbally and in writing, the Agency's position that certain proposed WQS could not be approved if submitted to the EPA. Consistent with that position and the EPA's publicly available record, the EPA is disapproving the sections of the DWR's water quality standards allowing alternative approaches for the implementation of the newly approved toxics criteria for some purposes under the Act. Specifically, the "biological confirmation" for assessment and the "action levels" for NPDES permitting are disapproved for all purposes under the Act. The State has now adopted separate, more stringent numeric criteria that are approved for all purposes under the CWA and must be implemented in NPDES permits as required by the EPA's national permitting regulations and monitoring and assessment programs. The State's separate "biological confirmation" and "action levels" provisions are not protective of the designated uses. In addition, the EPA communicated its concern with the use of a median instream hardness when calculating hardness dependent metals criteria, another provision designed to allow an alternative approach in NPDES permitting for implementing the State's toxics criteria, because median hardness does not protect designated uses in all waters. EPA also communicated its concern that the State has not demonstrated that the low end hardness cap provision protects designated uses of waters with a hardness below the cap. Therefore, the EPA is also disapproving the median hardness and low end hardness cap WQS.

Finally, numerous changes were made to the structure and formatting of the WQS and each of those changes were reviewed. Where those did not result in substantive changes to the WQS, the EPA is approving the revisions as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approval of the underlying substantive WQSs. Where the revisions were a substantive change to WQS, the EPA reviewed and made individual decisions regarding those changes as detailed below. Where the revisions were not considered changes to WQS, the Agency did not take action, as noted below. During this triennial, the State also provided an opportunity to accept comments on and conducted a review of the variances to water quality standards for Evergreen Paper Products, Mount Olive Pickle Company and Bay Valley Foods. The EPA continues to work with the State on the ongoing review of these water quality standards variances as noted below.

North Carolina should be extremely proud of these revisions to its WQS and the technical expertise demonstrated by its staff and management in the completion of this extended review. Each of the DWR's WQS revisions is addressed in detail below along with the EPA's analysis and decision.

15A NCAC 02B .0200 Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands

Throughout the Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands section .0200, several editorial revisions were made replacing commonly used terms with synonymous terms. For example, the word "which" was changed to "that." These revisions do not alter the meaning or intent of the previously approved corresponding provisions as they are considered editorial. A copy of the revised WQS with these changes highlighted in yellow is provided in Appendix A: Non-Substantive Word Changes. The EPA approves the non-substantive word change revisions in Appendix A as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0206 Flow Design Criteria for Effluent Limitations

Subsection 15A NCAC 02B .0206(a)(3) was amended to add:

> *(3) Toxic substance standards to protect aquatic life from acute toxicity shall be protected using the 1Q10 flow.*

In the EPA's *Technical Guidance Manual for Performing Wasteload Allocation. Book IV: Design Conditions,* Chapter 1 (EPA 1986a), the EPA discusses and recommends two methods for determining design flows for calculating effluent limits, the hydrologically-based method and the biologically-based method. Those design flows should be used to calculate both the Criterion Continuous Concentration (CCC, the 4-day average concentration of a pollutant that should not be exceeded more than once every three years on the average also known as the 'chronic' toxicity) and Criterion Maximum Concentration (CMC, the one hour average concentration in ambient water that should not be exceeded more than once every three years on average, also known as the 'acute' toxicity). The EPA recommends the use of the 1Q10 flow as the hydrologically-based design flow for the CMC and the 7Q10 as the hydrologically-based design flow for the CCC. The North Carolina WQS already includes a provision for the 7Q10 design flow for chronic toxicity (15A NCAC 02B .0206 (a)(2)). This revision adds the 1Q10 flow that will now be applicable for the new acute criteria that are being adopted during this triennial. Note: in this context the flow values that are listed are solely to be used for the calculation of water quality based effluent limitations as discussed under 15A NCAC 02B .0206(a). They do not indicate or refer to in any manner setting actual instream flows.

Considering the scientific and technical information supporting the EPA's Guidance, the EPA concludes that this change to subsection 15A NCAC 02B .0206 is consistent with the CWA section 303(c), 40 C.F.R. sections 131.11 and 131.13, and the EPA's guidance on stream design flows that are protective of aquatic life. This change is protective of the designated use. Therefore, this change is approved by the EPA under CWA section 303(c).

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters
General paragraph and Subparagraphs (1) through (10)

The following revisions were made to the General opening paragraph and subparagraphs (1) through (10) of Section 15A NCAC 02B .0211.

> *General. The water quality standards for all fresh surface waters ~~are~~ shall be the basic standards applicable to all Class C waters. ~~See Rule .0208 of this Section for standards for toxic substances and temperature.~~ Water quality standards for temperature and numerical water quality standards for the protection of human health applicable to all fresh surface waters are in Rule .0208 of this Section.*

The language regarding the reference to Rule .0208 was changed in this paragraph. The applicability of Rule .0208 to freshwaters of North Carolina has not been changed, nor has the content of Rule .0208 been changed. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The General paragraph was also modified as follows:

> *Additional and more stringent standards applicable to other specific freshwater classifications are specified in Rules. .0212, .0214, .0215, .0216, .~~0217~~, .0218, .0219, .0223, .0224 and .0225 of this Section.*

Subparagraph .0217 was repealed with an effective date of January 1, 1988. There are no provisions under that Rule. Therefore, reference to that Rule has been removed. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The following sentence was added as the final sentence to the general paragraph:

> *Action levels for purposes of National Pollutant Discharge Elimination System (NPDES) permitting are specified in Item (22) of this Rule.*

The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs. For the substantive discussion of the EPA's decision regarding revisions to action levels in fresh surface waters, see page 28.

The following subparagraphs were renumbered for alphanumeric reordering only:

(1) Best Usage of Waters
(2) Conditions Related to Best Usage
(4) Chlorophyll a (corrected)
(6) Dissolved Oxygen
(8) Floating Solids, settleable solids, or sludge deposits

(10) Gases, total dissolved.

There were no other changes to these standards except for the numbering. The EPA has reviewed these changes and determined that they are non-substantive and therefore, the EPA approves these revisions as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that this approval of these non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.
Subparagraph (3) was amended as follows:

~~*(3) Quality standards applicable to all fresh surface waters:*~~

This sentence came before all of the criteria in the old format prior to the alphabetical reorganization of the WQS. The State indicated that this sentence was found to be redundant with the information in the General paragraph. The General paragraph listed just above this states that the WQS "...for all fresh surface waters are the basic standards applicable to Class C waters." 15A NCAC 02B .0101 General Procedures provides a definition for Class C waters which includes that "*Class C: freshwaters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All freshwaters shall be classified to protect these uses at a minimum.*" The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

New subparagraph (3) was created:

(3) Chlorine, total residual: 17 ug/l;

This revision moves chlorine from its previous location at Rule .0211(3)(l)(iv) without revision in order to alphabetize the criteria. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

New subparagraph (5) was created:

(5) Cyanide, total: 5.0 ug/L;

The new paragraph moves cyanide from its previous location at Rule .0211(3)(l)(vi) and retains the same numeric value. Therefore, this revision is a non-substantive change to WQSs and the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

However, the original cyanide criterion included the following language after the numeric criteria that is no longer included, "*...unless site-specific criteria are developed based upon the aquatic life at the site utilizing The Recalculation Procedure in Appendix B of Appendix L in the Environmental Protection Agency's Water Quality Standards Handbook hereby incorporated by reference including any subsequent amendments.*" That language is struck out in the original location and not carried over to the new criterion's location.

States are not required to utilize the site-specific procedures, therefore the EPA concludes that this change to subsection 15A NCAC 02B .0211(11)(a)(5) is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, this change is approved by the EPA under CWA section 303(c). North Carolina notes that the site-specific criterion for cyanide has never been used since its original adoption. According to the state, Rule .0226 Exemptions from Surface Water Quality Standards, may be modified in the next triennial to include reference to the Handbook procedures that will allow the State to develop site-specific criteria. Until such time, the language allowing the use of the site-specific criteria has been removed and cannot be used for CWA purposes.

New paragraph (7) was added to move the criteria for fecal coliform into alphabetical order.

(7) Fecal coliform:

The fecal coliform criteria was previously Rule .0211(3)(e) and included the language "*Organisms of the coliform group:*" in front of the criteria. Those introductory words have been replaced with the words "*Fecal coliform:.* " No other changes were made to the criteria. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

New paragraph (9) was added to move the criterion for fluorides from Rule .0211(3)(l)(vii) in order to alphabetize the criteria, as follows:

(9) Fluorides: 1.8 mg/l;

The numeric value of the criterion did not change. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(a)

A new subparagraph under 15A NCAC 02B .0211(11)(a) has been added as follows:

(11) Metals:

(a) *With the exception of mercury and selenium, freshwater aquatic life standards for metals shall be based upon measurement of the dissolved fraction of the metal. Mercury and selenium water quality standards shall be based upon measurement of the total recoverable metal.*

The DWR did not adopt updated criteria for mercury or selenium, leaving in place the previous values which are based on the total recoverable metal. Therefore, the reference to those parameters in the first sentence is a non-substantive change to standards. The EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The EPA's most current national recommended water quality criteria for protection of aquatic life include the recommendation that fresh and salt water criteria for metals (including specifically arsenic, cadmium,

chromium III, chromium VI, copper, lead, nickel, silver and zinc) be expressed in terms of the dissolved metal in the water column (EPA 1993). The EPA further stated in this guidance that "[t]he use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal."

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA concludes that this change to subsection 15A NCAC 02B .0211(11)(a) is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, this change is approved by the EPA under CWA section 303(c).

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(b)

A new subparagraph 11(b) was added as follows that adds and revises criteria for non-hardness dependent metals and includes the ability to conduct a water effect ratio (WER) as follows:

(11) Metals:
(b) Freshwater metals standards that are not hardness-dependent shall be as follows:
(i) Arsenic, dissolved, acute: WER· 340 ug/l;
(ii) Arsenic, dissolved, chronic: WER· 150 ug/l;
(iii) Beryllium, dissolved, acute: WER· 65 ug/l;
(iv) Beryllium, dissolved, chronic: WER· 6.5 ug/l;
(v) Chromium VI, dissolved, acute: WER· 16 ug/l;
(vi) Chromium VI, dissolved, chronic: WER· 11 ug/l;
(vii) Mercury, total recoverable, chronic: 0.012 ug/l;
(viii) Selenium, total recoverable, chronic: 5 ug/l;
(ix) Silver, dissolved, chronic: WER· 0.06 ug/l;

With the adoption of these criteria under 15A NCAC 02B .0211(11)(b), North Carolina's water quality criteria for non-hardness dependent metals, listed above, are consistent with the EPA's most current national recommended water quality criteria or derived using an EPA recommended approach as detailed below.

Arsenic

In this revision, North Carolina adopted the EPA's most recent national recommendation of 340 ug/l as an acute criterion for arsenic in freshwater. This is the first time that North Carolina has had an acute criterion for arsenic.

The State revised its chronic freshwater criterion for arsenic to adopt the EPA's most current recommended value of 150 ug/l replacing the previous State criterion of 50 ug/l (EPA 1995). The State noted in its adoption of this value that, "[c]urrent arsenic water quality standards designed for the protection of human health in *all* waters of the state remains at 10 ug/l, measured as total recoverable arsenic. The DWR maintains this protective standard which is equivalent to the current National Drinking Water standard." 40 C.F.R. section 131.11 states, "[f]or waters with multiple use designations, the criteria shall support the most sensitive use." In this instance, the human health value of 10 ug/l would be the criteria supporting the most sensitive use applicable to all waters of the State.

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsections 15A NCAC 02B .0211(11)(b)(i) and (ii) protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Beryllium

In this revision, North Carolina adopted an acute criterion for beryllium in freshwater of 65 ug/l. This is the first time that the State has adopted an acute value for beryllium. In 1980, the EPA concluded that an acute freshwater criterion could not be calculated due to a limited toxicity data base (EPA 1980a). Therefore, the EPA does not have an acute water quality recommendation for beryllium. The 1980 EPA report did note that acute toxicity could occur at concentrations as low as 130 ug/l. North Carolina used the acute data from the 1980 report and derived its acute freshwater criterion in a manner that is consistent with the EPA's *1985 Guidelines for Deriving Numerical National Water Quality Criteria for the Protection Of Aquatic Organisms and Their Uses* ("1985 Guidelines," EPA 1985).

North Carolina's methodology for deriving acute criteria for beryllium is scientifically defensible and results in values that protect North Carolina's aquatic life use. The EPA concludes that the change to subsection 15A NCAC 02B .0211(11)(b)(iii) is consistent with the CWA and 40 C.F.R. section 131.11. Therefore, this change is approved by the EPA under CWA section 303(c).

The State is maintaining its chronic freshwater criterion for beryllium of 6.5 ug/l. For alphabetizing purposes the chronic beryllium criterion was moved from 15A NCAC 02B .021(3)(l)(ii) to 15A NCAC 02B .0211(11)(b)(iv), which is a non-substantive change to standards and therefore the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

Chromium VI

Before these revisions, North Carolina did not have criteria for chromium III or chromium VI, instead having a single chronic value for total recoverable chromium of 50 ug/l. In this Rule, North Carolina is adopting the EPA's national recommended criteria for chromium VI of 16 ug/l (acute) and 11 ug/l (chronic) (EPA 1995).

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsections 15A NCAC 02B .0211(11)(b)(v) and (vi) protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Mercury and Selenium

The EPA notes that the numeric values for both mercury and selenium were not changed during this triennial review. The numeric criterion for mercury was moved from 15A NCAC 02B .021(3)(l)(ix) to 15A NCAC 02B .0211(11)(b)(vii) for alphabetizing purposes only. The numeric criterion for selenium was moved from 15A NCAC 02B .021(3)(l)(xiii) to 15A NCAC 02B .0211(11)(b)(viii) for alphabetizing purposes only. As the numeric value did not change for either of these criteria, the EPA determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the

EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

Silver

In this revision, North Carolina is adopting a chronic water quality criterion for silver of 0.06 ug/l in subsection 15A NCAC 02B .0211(11)(b)(ix) of this Rule. Currently, the EPA does not have a national recommended chronic criteria for silver. The State calculated this criterion using the lowest LC50 for total recoverable silver of 1.2 ug/l and multiplying it by a safety factor of 0.05. These calculations are consistent with previously approved procedures for the calculation of toxics criteria for the protection of aquatic life under subsection 15A NCAC .0208 (a)(1) Standards for Toxic Substances and Temperature.

North Carolina's methodology for deriving chronic criteria for silver is scientifically defensible and results in values that protect North Carolina's aquatic life use. The EPA concludes that the change to subsection 15A NCAC 02B .0211(11)(b)(ix) protects North Carolina's aquatic life use and, therefore, is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. This change is approved by the EPA under CWA section 303(c).

The above changes are summarized in the table below for ease of reference.

Metal (all values are dissolved)	**NCDWR's Previous Criteria (ug/l)**	**NCDWR New/Revised Criteria (ug/l)**	**EPA's Recommended Criteria (ug/l)**	**EPA's Reference for Recommended Criteria**
Arsenic (acute)	--	340	340	EPA 1995
Arsenic (chronic)	50 ug/l	150	150	
Beryllium (acute)	--	65	--	N/A
Beryllium (chronic)	6.5	6.5	--	
Chromium VI (acute)	--	16	16	EPA 1995
Chromium VI (chronic)	--	11	11	
Silver (chronic)	0.06 Action Level only	0.06	--	N/A

Water Effect Ratios

The following was added underneath the non-hardness dependent criteria in Subparagraph 11(b):

> *With the exception of mercury and selenium, acute and chronic freshwater aquatic life standards for metals listed in this Subparagraph apply to the dissolved form of the metal and apply as a function of the pollutant's water effect ratio (WER). A WER expresses the difference between the measures of the toxicity of a substance in laboratory waters and the toxicity in site water. The WER shall be assigned a value equal to one unless any person demonstrates to the Division's satisfaction in a permit proceeding that another value is developed in accordance with the "Water Quality Standards Handbook: Second Edition"*

published by the US Environmental Protection Agency (EPA-823-B-12-002), free of charge, at http://water.epa.gov/scitech/swguidance/standards/handbook, hereby incorporated by reference including any subsequent amendments. Alternative site-specific standards may also be developed when any person submits values that demonstrate to the Commissions' satisfaction that they were derived in accordance with the "Water Quality Standards Handbook: Second Edition, Recalculation Procedure or the Resident Species Procedure", hereby incorporated by reference including subsequent amendments at http://water.epa.gov/scitech/swguidance/standards/handbook/. This material is available free of charge.

This provision allows the use of a WER directly for each of the above non-hardness dependent metals (criteria x WER). The DWR provides the citation for the EPA Water Quality Standards Handbook, incorporated by reference including any amendments ("WQS Handbook," EPA 2014). Within the WQS Handbook, Appendix L, *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals* ("WER Guidance", EPA 1994a), including the transmittal memo, "Use of the Water-Effect Ratio in Water Quality Standards (EPA 1994b), provides specific details on the applicability of WERs and how to develop WERs for site-specific criteria for metals. The WER guidance notes that one of the options under 40 C.F.R. 131.11 (b)(1) allows states to establish criteria based on 304(a) Guidance modified to reflect site-specific conditions. The WER transmittal memo notes that site-specific criteria are subject to EPA review and approval/disapproval under section 303(c) of the CWA. The two options allowed for this review are:

Option 1: A state may derive and submit each individual water-effect ratio determination to EPA for review and approval.

Option 2: A State can amend its water quality standards to provide a formal procedure with includes derivation of water-effects ratios, appropriate definition of sites, and enforceable monitoring provisions to assure that designated uses are protected. Both this procedure and the resulting criteria would be subject to full public participation requirements. Public review of a site-specific criterion could be accomplished in conjunction with the public review required for permit reissuance. EPA would review and approve/disapprove this protocol as a revised standard once. For public information, we recommend that once a year the State publish a list of site-specific criteria.

By referencing the procedures in the WQS Handbook, which includes the WER Guidance and the WER transmittal memo, the DWR has chosen to proceed with Option 2, adopting the EPA's protocol and all associated procedures to conduct WERs. The requirements for public review of a WER will be incorporated through the permit process. The State has chosen to include a WER of 1 in the WQS, which the EPA considers a "rebuttable presumption until a site-specific WER is derived." National Toxics Rule (NTR), 57 Fed. Reg. (page 60,866) (December 22, 1992). The WER Transmittal memo emphasizes that ". . . although a water-effect ratio affects permit limits for individual dischargers, it is the State in all cases that determines if derivation of a site-specific criterion based on the water-effect ratio is allowed and it is the State that ensures that the calculations and data analysis are done completely and correctly." The EPA strongly recommends that the first WERs developed by the State are reviewed in the study plan phase by the EPA to ensure that WERs that are developed meet the required procedures. The EPA looks forward to working with the State to ensure a quick review of the study plans.

This section also allows for alternative site-specific standards to be developed using the Recalculation Procedure or the Resident Species Procedure in accordance with the WQS Handbook. In deriving site-specific criteria, the Recalculation Procedure (found at Appendix A of Appendix L of the WQS

Handbook) takes into account the differences in sensitivities between the species used in the national dataset in developing the national recommended criteria and the organisms at the site. The Resident Species Analysis (see Chapter 3.7 - Developing Site-Specific Criteria of the WQS Handbook) accounts for that difference as well as the difference between the toxicity of the metal in lab water versus site water similar to a WER. Chapter 3.6 - Policy on Aquatic Life Criteria for Metals was updated to also include procedures to conduct a Streamlined Water-Effects Ratio Procedure for the Discharge of Copper that may be used.

The EPA concludes that the changes to subsection 15A NCAC 02B .0211(11)(b) to add the use of a WER and to include a WER multiplier in each of the criteria is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, these changes are approved by the EPA under CWA section 303(c).

The following provision was added at the end of this subparagraph:

Hardness-dependent freshwater metals standards are located in Sub-Item (c) and (d) and in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals;

The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(c)(i)

A new subsection 11(c)(i) was added as follows:

(11) Metals:

(c) Hardness-dependent freshwater metals standards shall be as follows:

(i) Hardness-dependent metals standards shall be derived using the equations specified in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals. If the actual instream hardness (expressed as $CaCO_3$ or Ca+Mg) is less than 25 milligrams/liter (mg/l), standards shall be calculated based upon 25 mg/l hardness. If the actual instream hardness is greater than 25 mg/l and less than 400 mg/l, standards shall be calculated based upon the actual instream hardness. If the instream hardness is greater than 400 mg/l, the maximum applicable hardness shall be 400 mg/l;

Section 15A NCAC 02B .0211(11)(c)(i) identifies the hardness value to be used in the newly adopted hardness based equations found in Table A (located after 15A NCAC 02B .0211(11)(d) Alternatives). As stated in the CTR, the EPA has found that "hardness and/or other water quality characteristics that are usually correlated to hardness can reduce or increase the toxicities of some metals. Hardness is used as a surrogate for a number of water characteristics which affect the toxicity of metals in a variety of ways." See 65 Fed. Reg. (page 31692). The relationship between hardness and toxicity is inversely proportional, that is, as the hardness increases, the toxicity is reduced. Therefore, the EPA's national recommended criteria for some metals (cadmium, chromium III, copper, lead, nickel, silver and zinc) are expressed as hardness based equations in order to most accurately reflect the site-specific toxicity of those metals.

As noted in letters[1] to the DWR, the EPA strongly supports the use of the nationally recommended hardness based equations for the derivation of criteria for hardness dependent metals. Using these equations should assure that the water quality standards are not *underprotective in low hardness waters* (setting criteria that are too high) or *overprotective in high hardness waters* (setting criteria that are too low). It is important that the correct hardness be used in those equations to ensure that the criteria are derived appropriately. This new section states in part that the hardness dependent standards shall be derived using the equations and that, "standards shall be calculated *based upon the actual instream hardness*." (Emphasis added). The EPA reads this section to state that the hardness to be used in the equation to derive the standard is based upon the actual instream hardness up to 400. This is consistent with the EPA's approach, where for instance, in the CTR, the EPA stated that the criteria should be calculated "using the actual ambient hardness of the surface water."

Low end Hardness Cap

This section also includes a provision that states "If the actual instream hardness (expressed as $CaCO_3$ or Ca+Mg) is less than 25 milligrams/liter (mg/l), standards shall be calculated based upon 25 mg/l hardness." This low end hardness "cap" for calculating criteria is not consistent with current EPA published recommendations. EPA published an update to the national recommended water quality criteria in 2002 that included the hardness dependent metals (EPA 2002). The EPA did not include a minimum hardness cutoff. Further, where the EPA has promulgated hardness based equations in the past such as in the CTR, a low end hardness cap was not included. In that rule, the EPA directly addressed this issue stating, "[I]n the past, EPA generally recommended that 25 mg/l as $CaCO_3$ be used as a default hardness value in deriving freshwater aquatic life criteria for metals when the ambient (or actual) hardness value is below 25 mg/l as $CaCO_3$. However, use of the approach results in criteria that may not be fully protective. Therefore, for waters with a hardness of less than 25 mg/l as $CaCO_3$, criteria should be calculated using the actual ambient hardness of the surface water."

North Carolina's 2015 adoption of a low end hardness cap is not consistent with EPA guidance, even with the State's application of a WER if deemed necessary for additional protection. The State did not provide adequate scientific justification to support its adoption of the cap as an alternative approach to EPA's recommendation. In its summary, the State cited EPA's 2002 Guidance stating toxicity data are somewhat limited below hardness of 25 mg/l, resulting in inconclusive data, and a hardness floor may not be fully protective. The EPA's Guidance states "Capping hardness at 25 mg/L without additional data or justification may result in criteria that provide less protection than that intended by EPA's Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses. Therefore, EPA now recommends that hardness not be capped at 25 mg/L, or any other hardness on the low end." North Carolina is concerned that use of actual ambient hardness in waters where hardness is below 25 mg/l may be overly protective. However, the State has not presented additional data or justification, demonstrating that designated uses would be protected if standards are calculated based upon 25 mg/l hardness in waters with a hardness less than 25 mg/L. Without such supporting justification, North Carolina's methodology for deriving a low end hardness cap is not scientifically defensible and the EPA cannot determine whether the cap would protect designated uses. The EPA concludes that the changes to subsection 15A NCAC 02B .0211(11)(c)(i) providing a low end hardness cap are not consistent with the CWA section 303(c) and 40 C.F.R. sections 131.6 and 131.11, and cannot be approved

[1] See Appendix B, EPA letters to DWR dated April 30, 2009, August 20, 2010, and January 3, 2014 and emails to DWR on August 22, 2014 and August 25, 2014.

as a protective water quality standard. Therefore, the EPA is disapproving the low end hardness cap changes under CWA section 303(c). The approved provision reads:

(11) Metals:

(d) Hardness-dependent freshwater metals standards shall be as follows:

(i) Hardness-dependent metals standards shall be derived using the equations specified in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals. If the actual instream hardness (expressed as $CaCO_3$ or Ca+Mg) is ~~less than 25 milligrams/liter (mg/l), standards shall be calculated based upon 25 mg/l hardness. If the actual instream hardness is greater than 25 mg/l and~~ less than 400 mg/l, standards shall be calculated based upon the actual instream hardness. If the instream hardness is greater than 400 mg/l, the maximum applicable hardness shall be 400 mg/l;

The EPA recommends that the State delete the low end hardness cap language to match the approved provision above during the next triennial review.

High End Hardness Cap

This section includes the provision, "*If the instream hardness is greater than 400 mg/l, the maximum applicable hardness shall be 400 mg/l*", which is consistent with published EPA recommendations that state, "[a]t high hardness there is an indication that hardness and related inorganic water quality characteristics do not have as much of an effect on toxicity of metals as they do at lower hardnesses. Related water quality characteristics do not correlate as well at high hardnesses." The EPA recommends that for hardness over 400 mg/l as $CaCO_3$ calculation of a criterion with a default WER of 1.0 should provide the protection intended in the 1985 Guidelines. See 57 Fed. Reg. (page 60,916). The EPA does note that "capping hardness at 400 mg/l might result in a level of protection that is higher than that intended by the 1985 guidelines, but any such increase in the level of protection can be overcome by use of the WER procedure." Id. As DWR is adding in the WER procedures in this rulemaking, the state will have the ability to ensure that the proper level of protection is ensured in waters with high hardness.

The EPA concludes that the changes to subsection 15A NCAC 02B .0211(11)(c)(i) providing a high end hardness cap are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, these changes are approved by the EPA under CWA section 303(c).

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(c)(ii)

A new subsection 11(c)(ii) was added as follows:

(11) Metals:

(c)(ii) Hardness-dependent metals in NPDES permitting: for NPDES permitting purposes, application of the equations in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals shall have hardness values (expressed as $CaCO_3$ or Ca+Mg) established using the median of instream hardness data collected within the local US Geological Survey (USGS) and Natural Resources Conservation Service (NRCS) 8-digit Hydrologic Unit (HU). The minimum applicable instream hardness shall be 25 mg/l and the maximum applicable instream hardness shall be 400

mg/l, even when the actual median instream hardness is less than 25 mg/l and greater than 400 mg/l;

As stated above, the EPA approved for all purposes under the CWA the use of the actual instream hardness for calculating the appropriate water quality criteria when using the equations in Table A, except for hardness above 400 mg/l $CaCO_3$. The newly adopted provision in this subparagraph adds an alternate method for choosing the hardness value to be used when calculating permit limits for NPDES permits under Section 402 of the CWA.

The DWR stated that this section was adopted to ensure that a set value was used for deriving permit limits that did not vary from day-to-day. Use of the median of instream hardness data collected using the 8-digit Hydrologic Unit (HU) where a facility was located was intended to provide a uniform measurement of hardness both for deriving the permit limit and for determining compliance. The DWR was concerned that the use of the actual instream hardness could also be unduly influenced by effluent which could have higher hardness than the receiving waters, resulting in a metal criterion that would not be protective of downstream waters. North Carolina's evaluation also took into account elevated instream hardness from stormwater run-off in urban centers, which they state has been found to be inconsistent with "unimpacted upstream or downstream hardness values."

However, subpart 15A NCAC 02B .0211(11)(c)(ii), in effect, creates an alternate criteria for permitting purposes from 15A NCAC 02B .0211(11)(c)(i). The EPA regulations found at 40 C.F.R. 131.2 states that water quality standards define "the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses...and serve the purposes of the Clean Water Act." Those references goals include all section 101(a)(2) goals, such as ensuring that waters are fishable/swimmable. 40 C.F.R. 131.2 states that "[s]uch standards *serve the dual purposes* of establishing the water quality goals for a specific water body and serve as the regulatory basis for the establishment of water quality based treatment controls and strategies beyond the tech-based levels of treatment required by section 301(b) and 306 of the Act" (emphasis added). Section 15A NCAC O2B .0211(11)(c)(ii) results in alternative metals effluent limitations for purposes of permitting that are inconsistent with North Carolina's newly established metals criteria and are inconsistent with the water quality standards regulations.

North Carolina has discussed the challenges associated with determining the proper instream hardness values, but has not provided a scientifically defensible justification for the use of the median hardness. Use of the median, by definition, ensures that the hardness value is too high (not protective enough) for half of the facilities and too low (needlessly overprotective) for half the facilities. The size of the 8-digit HUs is such that it could cross ecoregions or subecoregions and include a wide range of hardness values, as demonstrated by the data provided by the State. The purpose of the hardness dependent criteria is to reflect conditions in waters at or near a facility and derive criteria that protect designated uses in those waters. North Carolina has not demonstrated that use of the median hardness will protect designated uses. The EPA NPDES permitting program will work with North Carolina to ensure that the hardness procedures used for implementation will address North Carolina's concerns. For instance, the EPA recommends that hardness samples be collected in the receiving stream upstream and away from the influence of the effluent as discussed in the CTR and those recommendations could be part of the implementation procedures for permitting. The EPA notes that typically these types of provisions are considered through NPDES permitting implementation procedures and should not be included as a WQS. The EPA concludes that the changes to subsection 15A NCAC 02B .0211(11)(c)(ii) are not protective of designated uses and, therefore, are not consistent with the CWA section 303(c) or 40 C.F.R. section 131.11. Therefore, these changes are not approved by the EPA under CWA section 303(c). The EPA

notes in disapproving this section that provisions for determining hardness to use in the hardness based equations shall be conducted using the approved provisions under 15A NCAC 02B .0211(11)(c)(i). The EPA recommends that the State delete the entire provision for median hardness in NPDES permitting during the next triennial review.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(d)

New subparagraph (11)(d) was added as follows to allow for the use of WERs for the metals listed in Table A:

> *(d) Alternatives:*
> *Acute and chronic freshwater aquatic life standards for metals listed in Table A apply to the dissolved form of the metal and apply as a function of the pollutant's water effect ratio (WER), which is set forth in Sub-Item (b). Alternative site-specific standards may also be developed as set forth in Sub-Item (b);*

As discussed in the review of the use of WERs under subparagraph .0211(11)(b), the use of WERs is consistent with the EPA's policy and guidance. The discussion in that section's review are incorporated into the review of this section by reference. For the same reasons set out in that section, the EPA concludes that the changes to subsection 15A NCAC 02B .0211(11)(d) to add in the use of a WER and to include a x1 multiplier in each of the criteria for the criteria in Table A is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, these changes are approved by the EPA under CWA section 303(c). The EPA strongly recommends that the first WERs developed by the State are reviewed in the study plan phase by the EPA to ensure that WERs that are developed meet the required procedures. The EPA looks forward to working with the State to ensure a quick review of the study plans.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Table A under .0211(d)

A new table, Table A, was added to this section for new or revised criteria for hardness dependent metals:

> *Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals*
> *Numeric standards calculated at 25 mg/l hardness are listed below for illustrative purposes. The Water Effects Ratio (WER) is equal to one unless determined otherwise under Sub-Item (d) of this rule.*

Metal	*Equations for Hardness-Dependent Freshwater Metals (ug/l)*	*Standard at 25 mg/l hardness*
Cadmium, Acute	*WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151 [ln hardness]-3.1485}]*	*0.82*
Cadmium, Acute, Trout waters	*WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151[ln hardness]-3.6236}]*	*0.51*
Cadmium, Chronic	*WER· [1.101672-[ln hardness](0.041838)} · e^{0.7998[ln hardness]-4.4451}]*	*0.15*
Chromium III, Acute	*WER· [0.316 · e^{0.8190[ln hardness]+3.7256}]*	*180*
Chromium III, Chronic	*WER· [0.860 · e^{0.8190[ln hardness]+0.6848}]*	*24*

Copper, Acute	*WER· [0.960 · e^{0.9422[ln hardness]-1.700}]* *Or,* *Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*	*3.6* *NA*
Copper, Chronic	*WER· [0.960 · e^{0.8545[ln hardness]-1.702}]* *Or,* *Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision* *(EPA-822-R-07-001)*	*2.7* *NA*
Lead, Acute	*WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-1.460}]*	*14*
Lead, Chronic	*WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-4.705}]*	*0.54*
Nickel, Acute	*WER· [0.998 · e^{0.8460[ln hardness]+2.255}]*	*140*
Nickel, Chronic	*WER· [0.997 · e^{0.8460[ln hardness]+0.0584}]*	*16*
Silver, Acute	*WER· [0.85 · e^{1.72[ln hardness]-6.59}]*	*0.30*
Zinc, Acute	*WER· [0.978 · e^{0.8473[ln hardness]+0.884}]*	*36*
Zinc, Chronic	*WER· [0.986 · e^{0.8473[ln hardness]+0.884}]*	*36*

Note: For ease of review, this evaluation will be separated into two sections: Cadmium and other metals.

Hardness based equations for all metals except cadmium

The EPA commends the DWR for adopting the hardness based equations for metals to bring them in line with the EPA's national recommended criteria. Use of the equations, rather than the previously used default number at a set hardness, aligns North Carolina's criteria with the national recommended criteria. The equations were developed to most accurately identify the biologically available fraction available for uptake by organisms and therefore most likely to cause a toxic effect to aquatic life. With the exception of cadmium, discussed in more detail below, each of the hardness based equations in Table A is consistent with the national recommended equations and the values for the metal specific variables.

Freshwater Conversion Factors and Parameters for Calculating Freshwater Dissolved Metals Criteria that Are Hardness-Dependent

Chemical	mA	bA	mC	bC	Freshwater Conversion Factor: CMC	Freshwater Conversion Factor: CCC
Cadmium	1.0166	-3.924	0.7409	-4.719	1.136672-[(*ln*hardness)(0.041838)]	1.101672-[(*ln*hardness)(0.041838)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	1.46203-[(*ln*hardness)(0.145712)]	1.46203-[(*ln*hardness)(0.145712)]
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.59	--	--	0.85	--
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Chromium III

Prior to these revisions, North Carolina did not have criteria for chromium III or chromium VI, instead having a single chronic value for total recoverable chromium of 50 ug/l. In this Rule, North Carolina is adopting the EPA's national recommended criteria for chromium III which are expressed as hardness based equations:

Acute: WER· [0.316 · e^{0.8190[ln hardness]+3.7256}] = 180 ug/l when calculated at 25 $CaCO_3$
Chronic: WER· [0.860 · e^{0.8190[ln hardness]+0.6848}] = 24 ug/l when calculated at 25 $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsection 15A NCAC 02B .0211(11) Table A for acute and chronic chromium III criteria protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Copper

In this triennial, North Carolina has adopted in Table A the Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision (EPA 2007) for calculating acute and chronic freshwater copper values using the Biotic Ligand Model (BLM). The BLM uses receiving water body characteristics to develop site-specific water quality criteria using the best available science to determine the bioavailability of copper. The BLM will require ten parameters to be put into the model, including temperature, pH, dissolved organic carbon, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity rather than just the hardness required for the hardness based equation.

North Carolina determined that the BLM was not often practical to implement when resources or data were not available for the collection or use of all ten parameters and therefore caveated the adoption to note that it will be used where sufficient data are available. On February 16, 2016, the EPA made available its Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model (EPA 2016). The EPA recommends North Carolina review the document and consider its use when developing site-specific copper criteria.

When sufficient data are not available, North Carolina has chosen to use the EPA's previously published hardness based equation for copper in order to ensure state wide implementation of copper criteria. These EPA equations were derived in EPA's "National Recommended Water Quality Criteria – Correction" (EPA 1999). The DWR notes that this criteria document is a modification of previously published 304(a) aquatic life that was issued in the "1995 Updates: Water Quality Criteria Document for the Protection of Aquatic Life in Ambient Water" (EPA 1995) adopted and approved by all other Region 4 state water quality standards programs. North Carolina also notes that the EPA derived these equations using Great Lakes Initiative Guidelines 60 Fed. Reg. 15,393-15,399, (March 23, 1995); also found in 40 C.F.R. 132, Appendix A. Both the BLM and the hardness based equation were derived based on the principles in the 1985 Guidelines.

The hardness based equation is as follows:

Acute: WER· [0.960 · e^{0.9422[ln hardness]-1.700}] = 3.6 ug/l calculated at 25 mg/l $CaCO_3$
Chronic: WER· [0.960 · e^{0.8545[ln hardness]-1.702}] = 2.7 ug/l calculated at 25 mg/l $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the acute and chronic copper criteria in subsection 15A NCAC 02B .0211(11) Table A protect North Carolina's aquatic life use and, therefore, are consistent with section 303(c) of the CWA and 40 C.F.R. section 131.11(b)(1)(i). These changes are approved by the EPA under CWA section 303(c) for all purposes under the CWA.

Lead

The numeric criterion for lead was moved from 15A NCAC 02B .021(3)(l)(viii) to 15A NCAC 02B .0211(11)(d) Table A for alphabetizing purposes. The criteria for lead were also significantly revised from a total recoverable chronic value of 25 ug/l to the EPA's national recommended hardness based equations as follows:

Acute: WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-1.460}] = 14 at 25 mg/l $CaCO_3$
Chronic: WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-4.705}] = 0.54 at 25 mg/l $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsection 15A NCAC 02B .0211(11) Table A for acute and chronic lead criteria protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Nickel

The numeric criterion for nickel was moved from 15A NCAC 02B .0211(3)(l)(x) to 15A NCAC 02B .0211(11)(d) Table A for alphabetizing purposes. The criteria for nickel were also revised from a total recoverable chronic value of 88 ug/l to the EPA's national recommended hardness based equations as follows:

Acute: WER· [0.998 · e^{0.8460[ln hardness]+2.255}] = 140 ug/l at 25 mg/l $CaCO_3$
Chronic: WER· [0.997 · e^{0.8460[ln hardness]+0.0584}] = 16 ug/l at 25 mg/l $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsection 15A NCAC 02B .0211(11) Table A for acute and chronic nickel criteria protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Silver

In this revision, North Carolina is adding an acute criterion for silver that is derived based on the EPA's national recommended hardness based equation:

Acute: WER· [0.85 · e^{1.72[ln hardness]-6.59}] = 30 ug/l at 25 mg/l $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the change to subsection 15A NCAC 02B .0211(11) Table A for acute silver criteria

protects North Carolina's aquatic life use and, therefore, is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, this change is approved by the EPA under CWA section 303(c).

Zinc

North Carolina has revised its previous water quality standard for zinc from a chronic value of 50 ug/l to the dissolved acute and chronic values expressed by the EPA's national recommended hardness dependent equations:

Acute: WER· [0.978 · e^{0.8473[ln hardness]+0.884}] = 36 ug/l calculated at 25 mg/l $CaCO_3$
Chronic: WER· [0.978 · e^{0.8473[ln hardness]+0.884}] = 36 ug/l calculated at 25 mg/l $CaCO_3$

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the zinc criteria in subsection 15A NCAC 02B .0211(11) Table A protect North Carolina's aquatic life use and, therefore, are consistent with section 303(c) of the CWA and 40 C.F.R. section 131.11(b)(1)(i). These changes are approved by the EPA under section 303(c) for all purposes under the CWA.

Using the equations above for hardness dependent metals (other than cadmium), EPA compared North Carolina's new metals criteria to the EPA's recommended criteria, calculating all values for a default hardness of 25 mg $CaCO_3$ to facilitate comparison. Each individual criteria adopted by North Carolina is at least as stringent as the EPA's national recommendations.[2]

Comparison of Table A Hardness Dependent Metals with EPA's National Recommended Criteria			
Metal (all values are dissolved)	**NCDWR's Criteria calculated at a hardness of 25 (ug/l)**	**EPA's National Recommended criteria calculated at a hardness of 25 (ug/l)**	**EPA's Most Current Published Update**
Chromium III (acute)	180	183.07	EPA 1995
Chromium III (chronic)	24	23.81	EPA 1999
Copper (acute)	3.6	3.6	EPA 2007
Copper (chronic)	2.7	2.7	EPA 1999
Lead (acute)	14	13.88	EPA 1984
Lead (chronic)	0.54	0.54	
Nickel (acute)	140	144.92	EPA 1999
Nickel (chronic)	16	16	
Silver (acute)	0.30	0.3	EPA 1980
Zinc (acute)	36	36	EPA 1999
Zinc (chronic)	36	36	

[2] The slight differences in criteria levels shown in the chart is due to how the State and the EPA rounded results of calculations.

Hardness Based Equations for Cadmium

Prior to this revision, North Carolina had a chronic value of 0.4 ug/l for total cadmium in trout waters and 2.0 ug/l for total cadmium in non-trout waters found at 15A NCAC 02B .0211(3)(l)(iii). The revised water quality criteria for acute and chronic cadmium have been moved alphabetically into 15A NCAC 02B .0211 Table A. The new criteria are hardness based equations for the calculation of acute dissolved cadmium for non-trout and trout waters and a single chronic value for all waters.
The equations that North Carolina adopted did not use the variables that are recommended in the EPA's most recent recommendations resulting in criteria that differ from the national recommended criteria as indicated in the Table below.

Comparison of Table A Hardness Dependent Metals with EPA's National Recommended Criteria for Cadmium				
Metal (all values are dissolved)	**Previous NCDWR criteria**	**NCDWR's Criteria calculated at a hardness of 25 (ug/l)**	**EPA's National Recommended criteria calculated at a hardness of 25 (ug/l)**	**Most current EPA National Recommended Value**
Cadmium (acute)	--	**0.82**	0.52	EPA 2001
Cadmium (acute, trout waters)	--	0.51	0.52	
Cadmium (chronic)	0.4 ug/l trout waters 2.0 ug/l non-trout waters.	**0.15**	0.09	

The EPA's national recommended water quality criteria for cadmium were published in 2001 using the following equations:

$$\text{CMC (dissolved)} = (\text{CF}) \exp\{\mathbf{m}_A [ln(\text{hardness})] + \mathbf{b}_A\}$$
$$\text{CCC (dissolved)} = (\text{CF}) \exp\{\mathbf{m}_C [ln(\text{hardness})] + \mathbf{b}_C\}$$

The DWR modified those equations to use different variables from the recommended hardness criteria as shown in table below:

Hardness-based Equation Variable	**m_A (acute)**	**b_A (acute)**	**m_C (chronic)**	**b_C (chronic)**
EPA Recommended Variables for calculating cadmium criteria	1.0166	-3.924	0.7409	-4.719
Variables used by NC to calculate criteria	0.9151 (non-trout) 0.9151 (trout)	-3.1485 (non-trout) 3.6236 (trout)	0.7998	-4.4451

These modifications result in the following adopted equations for cadmium with the criteria shown calculated at 25 mg/l $CaCO_3$.

Acute: WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151 [ln hardness]-3.1485}] = 0.82
Acute (trout): WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151[ln hardness]-3.6236}] = 0.51
Chronic: WER· [1.101672-[ln hardness](0.041838)} · e^{0.7998[ln hardness]-4.4451}] = 0.15

North Carolina used the option under Section 131.11(b)(ii) that allows states to establish numerical standards by modifying Section 304(a) Guidance to reflect site-specific conditions. According to the DWR's justification, the State relied upon a study by Chadwick Ecological Consultants (CEC) that calculated alternative cold and warm water acute and chronic criteria for cadmium. Those values were adopted by the State of Colorado (effective date 1/1/2007) and approved by EPA Region 8. In Region 8's approval of those criteria, Region 8 stated:

> *EPA has reviewed the technical information supporting the revised table values. The Region notes that CEC applied the "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses" (EPA, 1985) in deriving the revised table values. The Region also notes that the differences between the CEC-derived table values and the CWA Section 304(a) criteria are partly attributable to CEC's use of a larger, more current database. Finally, the Region notes that the differences between the CEC-derived table values and the CWA Section 304(a) criteria are small relative to the uncertainties in both analyses. Accordingly, the Region has determined that: (1) the revised acute and chronic table value standards for cadmium were derived using scientifically-defensible methods, (2) the resulting table values generally are appropriate for the protection of Colorado's aquatic life classifications, and (3) the revisions are consistent with federal requirements at 40 C.F.R. 131.11. Accordingly, the revisions are approved today, subject to ESA consultation.*

Region 4 has determined that the CEC report relied on by the State represents the latest compilation of cadmium toxicity data available, consistent with Region 8's determination cited above. Region 4's findings are consistent with the scientific findings of Region 8 cited above and, additionally, Region 4 finds that the resulting values derived by North Carolina protect the State's aquatic life classifications. Region 4 concludes that the changes to subsection 15A NCAC 02B .0211(11)(d) to add the revised criteria in Table A for cadmium are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, these changes are approved by the EPA under CWA section 303(c) for all purposes under the Act.

15A NCAC 02B .0211(11)(e) Fresh Surface Water Quality Standards for Class C Waters

A new subsection regarding monitoring for metals was added as follows:

> *(11) Metals:*
>
> *(e) Compliance with acute instream metals standards shall only be evaluated using an average of two or more samples collected within one hour. Compliance with chronic instream metals standards shall only be evaluated using averages of a minimum of four samples taken on 5 consecutive days, or as a 96-hour average;*

After review of this new provision, the EPA has concluded that it is not a new or revised water quality standard and is therefore taking no action on this provision. This provision does not establish or change a level of protection related to the magnitude, duration, or frequency of water quality criteria nor establish designated uses or antidegradation requirements. Rather, this provision describes the sufficiency or reliability of information necessary for the State to decide whether a water attains or does not attain a water quality standard for purposes of establishing TMDLs under section 303(d)(1)(A) of the Act. As such, this provision is not a water quality standard but is a methodology under section 303(d) of the Act. See 40 C.F.R. § 130.7(b)(6). While this provision was not reviewed by EPA as a new or revised water quality standard, it may be considered by the EPA in reviewing lists of impaired waters submitted by the State under Section 303(d) of the CWA. The decision to not review this provision in no way confers agreement with the use of the provision for making attainment decisions.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters Subparagraph (11)(f)

A new subsection relating to biological confirmation for the assessment of metals was added as follows:

> *(f) Metals criteria shall be used for proactive environmental management. An instream exceedence of the numeric criterion for metals shall not be considered to have caused an adverse impact to the instream aquatic community without biological confirmation and a comparison of all available monitoring data and applicable water quality standards. This weight of evidence evaluation shall take into account data quality and the overall confidence in how representative the sampling is of conditions in the waterbody segment before an assessment of aquatic life use attainment, or non-attainment, shall be made by the Division. Recognizing the synergistic and antagonistic complexities of other water quality variables on the actual toxicity of metals, with the exception of mercury and selenium, biological monitoring will be used to validate, by direct measurement, whether or not the aquatic life use is supported:*

As the EPA has advised the DWR on multiple occasions, including directly addressing this provision in writing on multiple occasions, the EPA has a long history of not supporting biological confirmation for toxics assessment.[3] The EPA views biological criteria as one component of a comprehensive water quality standards program that works in concert with – *not in place of* – the use of water quality criteria for toxics as detailed further below.

North Carolina is adopting criteria for metals which will bring its water quality standards program in-line with other Region 4 states and EPA's national recommended criteria. These revisions are significant because chemical specific numeric criteria are a vital component of the CWA program for protection of the nation's waters for both assessment and permitting. The EPA has stated that "chemical specific assessments are ideal for predicting the likelihood of ecological impacts where they may not yet have occurred because...critical exposure conditions have not yet been experienced by the aquatic community." It further states that "Basing regulatory and management decisions on chemical assessment of water quality is an important and proven aspect of water quality assessment and protection" Water Quality Standards Regulation; Proposed Rule 63 Fed. Reg. (page 36,796) (July 7, 1998). Therefore, once

[3] See Appendix B, letters from the EPA to DWR dated August 10th, 2010, and January 3, 2014 and emails to DWR on August 22, 2014 and August 25, 2014.

criteria are established, assessment for purposes of listing under section 303(d) of the CWA and for permitting under the NPDES program must be based on all applicable water quality criteria.

In contrast, the EPA has stated that, "...while biological assessments can provide information in determining the cumulative effect of past or current impacts from multiple stressors, these assessments may be limited in their ability to predict, and therefore *prevent*, impacts" (emphasis added.) In fact, once biological impairment has been found, by definition, that impact was not prevented and costs for determining the cause and source and needed restoration can be prohibitive. 63 Fed. Register page 36,795.

The EPA has discussed how results of different tools should be reconciled should they indicate different outcomes, such as passing a biological assessment while exceeding a chemical criteria. "Where biological impact is not detected using biological assessment methods, it is possible that impairment that is projected and plausible, may simply have not yet occurred....EPA's view is that it would be inappropriate to ignore projected impairment simply because the impairment has not yet been observed in the environment" See 63 Fed. Reg. (page 36,801).

Section 101(a) of the CWA directly states the goal that the biological integrity of the Nation's waters be maintained, specifically stating the national policy that the discharge of toxic pollutants in toxic amounts be prohibited in order to maintain biological integrity. To meet that goal, 40 C.F.R. 131.11 provides that criteria for toxics be established at levels that protect designated uses, that is, at levels that *prevent* impairment of waters. It is not protective to defer action until biological impairment has already occurred.

Furthermore, the EPA notes that DWR has adopted as part of this triennial review the use of the dissolved fraction of the toxics criteria, the hardness based equation for the hardness dependent metals and the BLM for copper criteria. Each of these provisions were done to more accurately derive and use criteria that are reflective of the biologically available fraction of the metals.

Finally, the US Fish and Wildlife Service (FWS) commented[4] on this provision during the public comment period. In addition to all of the EPA's stated objections, the FWS pointed out an additional flaw in this provision – the biological monitoring conducted by DWR does not include testing for those species that are most sensitive to toxic effects, including mussels, cladocerons and snails. Therefore North Carolina's biological monitoring is not representative of the impacts to all species that may be the most sensitive to the toxics subject to the new metals criteria adopted by the State during this triennial review.

The EPA has determined that the changes to subsection 15A NCAC 02B .0211(11)(f) do not protect North Carolina's aquatic life use and, therefore, are not consistent with the CWA section 303(c) or its implementing regulations found at 40 C.F.R. section 131.11. Therefore, these changes are disapproved by the EPA under CWA section 303(c). With today's disapproval of this section, the new water quality criteria for metals as approved shall be used for all purposes under the Act, including for purposes of monitoring and assessment. The EPA recommends that the State delete the entire biological confirmation provision during the next triennial review.

[4] See Appendix C. letters from the US FWS to NC DENR dated, January 3, 2014, and August 22, 2014.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters
Subparagraph 13 - 20

The following parameters were moved in order to alphabetize the state water quality criteria:

(13) Pesticides:
- *(a) Aldrin: 0.002 ug/l;*
- *(b) Chlordane: 0.004 ug/l;*
- *(c) DDT: 0.001 ug/l;*
- *(d) Demeton: 0.1 ug/l;*
- *(e) Dieldrin: 0.002 ug/l;*
- *(f) Endosulfan: 0.05 ug/l;*
- *(g) Endrin: 0.002 ug/l;*
- *(h) Guthion: 0.01 ug/l;*
- *(i) Heptachlor: 0.004 ug/l;*
- *(j) Lindane: 0.01 ug/l;*
- *(k) Methoxychlor: 0.03 ug/l;*
- *(l) Mirex: 0.001 ug/l;*
- *(m) Parathion: 0.013 [~~ug/l;~~] ug/l; and*
- *(n) Toxaphene: 0.0002 ug/l;*

~~(g)~~(14) pH: shall be normal for the waters in the area, which ~~generally shall~~ range between 6.0 and 9.0 except that swamp waters may have a pH as low as 4.3 if it is the result of natural conditions;

~~(h)~~(15) Phenolic compounds: only such levels as shall not result in fishflesh- tainting or impairment of other best usage;

(16) Polychlorinated biphenyls (total of all PCBs and congeners identified): 0.001 ug/l;

~~(i)~~(17) Radioactive substances:
- *~~(i)~~(a) Combined radium-226 and radium-228: the ~~maximum~~ average annual activity level (based on at least one sample collected per quarter)~~four samples collected quarterly)~~ for combined radium226 and radium228 shall not exceed five -picoCuries- per liter;*
- *~~(ii)~~(b) Alpha Emitters: the average annual gross alpha particle activity (including radium226, but excluding radon and uranium) shall not exceed 15 picoCuries- per liter;*
- *~~(iii)~~(c) Beta Emitters: the ~~maximum~~ average annual activity level (based on at least one sample collected per quarter) ~~four samples, collected quarterly)~~ for strontium90 shall not exceed eight picoCuries- per liter; nor shall the average annual gross beta particle activity (excluding potassium-40 and other naturally occurring ~~radio-nuclides)~~ radionuclides) exceed 50 picoCuries per liter; nor shall the ~~maximum~~ average annual activity level for tritium exceed 20,000 picoCuries per liter;*

~~(j)~~(18) Temperature: not to exceed 2.8 degrees C (5.04 degrees F) above the natural water temperature, and in no case to exceed 29 degrees C (84.2 degrees F) for mountain and upper piedmont waters and 32 degrees C (89.6 degrees F) for lower piedmont and coastal plain Waters; the temperature for trout waters shall not be increased by more than 0.5 degrees C (0.9 degrees F) due to the discharge of heated liquids, but in no case to exceed 20 degrees C (68 degrees F);

(19) Toluene: 11 ug/l or 0.36 ug/l in trout classified waters:

(20) Trialkyltin compounds: 0.07 ug/l expressed as tributyltin;

~~(k)~~(21) *Turbidity: the turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams,* ~~*lakes*~~ *lakes, or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased. Compliance with this turbidity standard can be met when land management activities employ Best Management Practices (BMPs) [as defined by Rule .0202 of this Section] recommended by the Designated Nonpoint Source Agency [as defined by Rule .0202 of this Section]. BMPs* ~~*must*~~ *shall be in full compliance with all specifications governing the proper design, installation,* ~~*operation*~~ *operation, and maintenance of such BMPs;*

The EPA has reviewed the revision and since the numeric values of the above listed criteria did not change, they are non-substantive. Therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters
Subparagraph (l)

The following language was removed from previously existing 15A NCAC 02B .0211(3)(l) where it had served as the introductory language to all metals criteria as well as criteria for other toxics (chlorine, cyanide flourides, pesticides, polychlorinated biphenyls, toluene and trialkyltin compounds). After alphabetizing the criteria, the metals and toxics criteria are no longer together in one section, therefore, the State removed the following introductory language.

~~*(l) Toxic substances: numerical water quality standards (maximum permissible levels) for the protection of human health applicable to all fresh surface waters are in Rule .0208 of this Section. Numerical water quality standards (maximum permissible levels) to protect aquatic life applicable to all fresh surface waters:*~~

The "General" paragraph listed at the beginning of 15A NCAC 02B .0211 now serves as the introductory paragraph to this section which applies to all metals and toxics criteria. The "General" paragraph states that the WQS "...for all fresh surface waters are the basic standards applicable to Class C waters." 15A NCAC 02B .0101 General Procedures provides a definition for Class C waters which includes that Class C waters are "*freshwaters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All freshwaters shall be classified to protect these uses at a minimum.*" EPA has reviewed this change and determined that it is non-substantive. The EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The following sections were removed from this subparagraph as follows:

~~*(i) Arsenic: 50 ug/l;*~~
~~*(ii) Beryllium: 6.5 ug/l;*~~
~~*(iii) Cadmium: 0.4 ug/l for trout waters and 2.0 ug/l for nontrout waters; attainment of these water quality standards in surface waters shall be based on measurement of total recoverable metals concentrations unless appropriate studies have been conducted to translate total recoverable*~~

~~metals to a toxic form. Studies used to determine the toxic form or translators must be designed according to the "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823-B-94-005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823-B-96-007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators;~~

~~(iv) Chlorine, total residual: 17 ug/l;~~

~~(v) Chromium, total recoverable: 50 ug/l;~~

~~(vi) Cyanide, 5.0 ug/l, unless site-specific criteria are developed based upon the aquatic life at the site utilizing The Recalculation Procedure in Appendix B of Appendix L in the Environmental Protection Agency's Water Quality Standards Handbook hereby incorporated by reference including any subsequent amendments;~~

~~(vii) Fluorides: 1.8 mg/l;~~

~~(viii) Lead, total recoverable: 25 ug/l, collection of data on sources, transport and fate of lead shall be required as part of the toxicity reduction evaluation for dischargers who are out of compliance with whole effluent toxicity testing requirements and the concentration of lead in the effluent is concomitantly determined to exceed an instream level of 3.1 ug/l from the discharge;~~

~~(ix) Mercury: 0.012 ug/l;~~

~~(x) Nickel: 88 ug/l, attainment of these water quality standards in surface waters shall be based on measurement of total recoverable metals concentrations unless appropriate studies have been conducted to translate total recoverable metals to a toxic form. Studies used to determine the toxic form or translators must be designed according to the "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823-B-94-005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823-B-96-007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators;~~

~~(xi) Pesticides:~~

~~(A) Aldrin: 0.002 ug/l;~~

~~(B) Chlordane: 0.004 ug/l;~~

~~(C) DDT: 0.001 ug/l;~~

~~(D) Demeton: 0.1 ug/l;~~

~~(E) Dieldrin: 0.002 ug/l;~~

~~(F) Endosulfan: 0.05 ug/l;~~

~~(G) Endrin: 0.002 ug/l;~~

~~(H) Guthion: 0.01 ug/l;~~

~~(I) Heptachlor: 0.004 ug/l;~~

~~(J) Lindane: 0.01 ug/l;~~

~~(K) Methoxychlor: 0.03 ug/l;~~

~~*(L) Mirex: 0.001 ug/l;*~~
~~*(M) Parathion: 0.013 ug/l;*~~
~~*(N) Toxaphene: 0.0002 ug/l;*~~
~~*(xii) Polychlorinated biphenyls: (total of all PCBs and congeners identified) 0.001 ug/l;*~~
~~*(xiii) Selenium: 5 ug/l;*~~
~~*(xiv) Toluene: 11 ug/l or 0.36 ug/l in trout waters;*~~
~~*(xv) Trialkyltin compounds: 0.07 ug/l expressed as tributyltin;*~~

The struck provisions for arsenic, beryllium, cadmium, chromium, lead and nickel have been replaced by new criteria as noted above. The remaining numeric values in this section were moved to other sections as previously noted. As the criteria are not changed, the EPA determined that these changes are non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0211(22) Fresh Surface Water Quality Standards for Class C Waters

North Carolina has had a provision in place to allow the use of action levels for copper, iron, silver, zinc and chloride rather than using water quality criteria for all purposes under the CWA. Under North Carolina's WQS, action levels are numerical water quality standards except for NPDES permitting. For NPDES permitting purposes, a facility would need reasonable potential to exceed a water quality criteria (or in this case, the action level), and must fail a Whole Effluent Toxicity (WET) test prior to receiving a limit in its NPDES permit. If a facility had reasonable potential for a parameter, such as copper or zinc, but passed a WET test, the facility would not be required to limit or control the parameter in its permit. Therefore, a facility may cause or contribute to an exceedance of an action level parameter and pass a WET test thereby not controlling for the action level parameters in its permit.

A subsection relating to action levels was revised to change the values for copper, silver and zinc, remove iron and remove the language that states that action levels are considered water quality standards. Each of the revisions are addressed individually below:

~~(4)~~(22) Action Levels for Toxic ~~Substances:~~ Substances Applicable to NPDES Permits:
(a) ~~Copper: 7 ug/l;~~Copper, dissolved, chronic: 2.7 ug/l;
~~(b) Iron: 1.0 mg/l;~~
(c) ~~Silver:~~Silver, dissolved, chronic: 0.06 ug/l;
(d) ~~Zinc:~~Zinc, dissolved, chronic: ~~50 ug/l;~~36 [~~ug/l;~~] ug/l: and
(e) Chloride: 230 mg/l;
The hardness-dependent freshwater action levels for ~~Copper and Zinc,~~ copper and zinc, provided here for illustrative purposes, corresponds to a hardness of 25 mg/l. Copper and [~~Zinc~~] zinc action level values for other instream hardness values shall be calculated per the chronic equations specified in Item (11) of this Rule and in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals. If the ~~Action Levels~~ action levels for any of the substances listed in this ~~Subparagraph~~Item (which are generally not bioaccumulative and have variable toxicity to aquatic life because of chemical form, solubility, stream characteristics or associated waste characteristics) are determined by the waste load allocation to be exceeded in a receiving water by a discharge under the specified ~~low flow~~ 7Q10 criterion for toxic ~~substances (Rule .0206 in this Section),~~ substances, the discharger shall monitor the chemical or biological effects of the discharge; efforts shall be

made by all dischargers to reduce or eliminate these substances from their effluents. Those substances for which ~~Action Levels~~ action levels are listed in this ~~Subparagraph~~Item shall be limited as appropriate in the NPDES permit ~~based on the Action Levels listed in this Subparagraph~~ if sufficient information (to be determined for metals by measurements of that portion of the dissolved instream concentration of the ~~Action Levels~~ action levels parameter attributable to a specific NPDES permitted discharge) exists to indicate that any of those substances may be a causative factor resulting in toxicity of the effluent. ~~NPDES permit limits may be based on translation of the toxic form to total recoverable metals. Studies used to determine the toxic form or translators must be designed according to "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823 B 94 005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823 B 96 007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators.~~

~~For purposes other than consideration of NPDES permitting of point source discharges as described in this Subparagraph, the Action Levels in this Rule, as measured by an appropriate analytical technique, per 15A NCAC 02B .0103(a), shall be considered as numerical instream water quality standards.~~

Removal of the Action Level for Iron

North Carolina has removed the action level for iron and has not replaced that value with a new or revised numeric water quality criterion. DWR proposed this revision and worked with the EPA in the scientific review and development of a justification that demonstrates that iron occurs at naturally high levels in some areas of the state, often above the value of 1 mg/l that is being removed. The EPA Region 4 conducted an independent evaluation of the State's findings and supports the removal of the iron criterion because iron occurs at naturally high levels. DWR has agreed that in order to protect the designated use for any potential impairment determined to be caused by iron (for instance, from mining operations or increased iron in the tailwaters below dams), the State will rely upon the existing narrative WQS at 15A NCAC .0211(12), "[o]ils, deleterious substances, colored, or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses."

The EPA has determined that the change to subsection 15A NCAC 02B .0211(22) to remove the iron criterion protects North Carolina's aquatic life use and, therefore, is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. The change is approved by the EPA under CWA section 303(c) for all purposes under the Act.

Revision to Copper, Silver and Zinc as an Action Level

As the EPA has advised the DWR on multiple occasions, the EPA does not support North Carolina's continued use of action levels, and directly addressed this provision in multiple letters to DWR.[5] The EPA reiterates its previous comments. The EPA's section 304(a) criteria were developed to take into account site specific factors such as solubility and chemical form in determining the biologically available fraction

[5] See Appendix B. EPA letters to DWR dated April 30, 2009, August 20, 2010, and January 3, 2014 and emails to DWR on August 22, 2014 and August 25, 2014.

available for uptake by biological organisms and, therefore, the fraction most likely to cause a toxic effect. The use of the dissolved fraction and the use of the hardness-based equations for hardness dependent metals, such as copper and zinc, further addressed variability caused by stream characteristics. Hardness is used as a surrogate for a number of water quality characteristics, which affect the toxicity of metals in a variety of ways. See 65 Fed. Reg. (page 31,692). North Carolina's adoption of the hardness dependent equations negates the need for the continued use of action levels as the criteria equations address issues related to protection of downstream waters and brings North Carolina in-line with the criteria used in surrounding states. This is particularly true as North Carolina is adopting the procedures for the use of the Biotic Ligand Model for copper as well as including a reference for EPA approved site-specific criteria development, such as WERs, under 15A NCAC 02B .0211(11)(b).

North Carolina's action level requirements, set forth above, provide that NPDES limits shall be set for metals if information exists to indicate that a particular substance may be a *causative* factor resulting in the toxicity of the effluent. 40 C.F.R. 122.44(d)(1)(i) states that limits must be put in place to control pollutants which may be discharged at a level "which will cause, have the reasonable potential to cause or contribute to an excursion above any State water quality standard." This regulation does not indicate that the effluent must be the sole cause of toxicity before the parameter should be limited. The provision states that the pollutant should be limited under NPDES if it could cause or if it could *contribute* to a water quality standards excursion. This requirement is significant because there may often be multiple sources of pollutants in receiving waters, from non-point source run-off, from point sources and from storm water. No one facility or source may be the sole cause of the impairment, but rather multiple discharges contribute to the toxicity and excursion of water quality standards. That is, a facility could contribute to an impairment while also passing a WET test. Therefore, when a point source discharges zinc levels with a reasonable potential to cause or contribute to exceedance of the State's zinc criteria, the permit must include effluent limitations as stringent as necessary to achieve the WQS.

The Region recognizes that North Carolina has a strong WET testing program. WET testing can be "effective for controlling discharges containing multiple pollutants. It can also provide a method for addressing synergistic and antagonistic effects on aquatic life" from multiple pollutants. See 63 Fed. Reg. (page 36,768). However, where criteria exist to directly control toxic pollutants, those criteria should be used to limit the discharge of pollutants. WET should be used to address those instances where criteria may not be available to limit toxicity. The EPA has explained that states can reconcile biological data, such as WET, with 'reasonable potential' analysis and concludes "EPA would not support a radical shift away from chemical criteria and limits or toxicity criteria and limits. Those tools are simply too important as proven tools for assessing potential impact to surface waters and improving water quality." See 63 Fed. Reg. (page 36,802). If needed, an effort should be made to refine the applicable criteria, through WERs and other tools, to ensure that appropriate criteria be developed for each facility. It is not protective, however, and is not consistent with EPA's permitting regulations, to defer permit limitations once there is reasonable potential to exceed a water quality criteria.

The State now has approved copper, silver and zinc criteria applicable for all purposes under the CWA in 15A NCAC 02B .0211(11) in place of the action levels, which were applicable only for NPDES permitting. The EPA concludes that the changes to subsection 15A NCAC 02B .0211(22) do not protect North Carolina's aquatic life use and, therefore, are not consistent with the CWA section 303(c) or its implementing regulations found at 40 C.F.R. section 131.11. The changes to (22)(a), (c), and (d) and the added language to the narrative following (22)(e) are disapproved by the EPA under CWA section 303(c). The deletions of the narrative language below (22)(e) at the end of the provision are approved by the EPA under CWA section 303(c) as consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. The EPA notes in disapproving this section that no new standards are required to be promulgated in its place

and the new water quality criteria for metals as approved in 15A NCAC 02B .0211(11) shall be used for all purposes under the Act.

The EPA's disapproval of the revisions to the action level provision means that the previously approved action levels are applicable WQS under the CWA, per the Alaska Rule.[6] However, the State's newly adopted and approved metals criteria are also applicable WQS under the CWA and, therefore, must also be implemented in all CWA programs, including the NPDES permitting program. The EPA's permitting regulations at 40 C.F.R. 122.44(d)(1)(vii)(A) require that effluent limitations be derived from and comply with all applicable water quality standards. Where the State has two applicable water quality standards addressing the same or similar parameters, permit limitations based on those WQS must protect the more stringent criteria. Based on EPA's understanding of the permitting provisions in North Carolina's action level section, effluent limitations derived to comply with the new metals criteria in 15A NCAC 02B .0211(11) will likely be more stringent than limitations derived to comply with the action level provision. The EPA recommends that the State delete the entire action level section during the next triennial review.

Action Level for Chloride

Chloride remains the only parameter in the action levels provision for which there is not an associated criterion in Table A or elsewhere in the State water quality standards. Prior to this revision, the following language applied to the action levels,

> *"For purposes other than consideration of NPDES permitting of point source discharges as described in this Subparagraph, the Action Levels in this Rule, as measured by an appropriate analytical technique, per 15A NCAC 02B .0103(a), shall be considered as numerical instream water quality standards."*

This language, which was removed from the revised action level provision, was previously added by the State to clarify that the State intended the action level values to be standards for all other CWA purposes besides permitting. In this triennial review, the State adopted numeric water quality criteria for all purposes under the CWA, as water quality standards. The adoption of numeric criteria for all other action level parameters clarifies their use as WQS. The numeric value for chloride still remains and the EPA anticipates that the State will continue using the chloride action level as a WQS for all other purposes under the CWA. The EPA's position is that the chloride action level is still a WQS for all other purposes than permitting even with the sentence above deleted. The EPA notes that with this section 303(c) decision, the only remaining action level is chloride. Therefore, the EPA strongly recommends that North Carolina adopt chloride as a numeric water quality criterion for all purposes under the CWA and remove the Action Level section from the water quality standards.

[6] The Alaska Rule states that water quality standards adopted by states and authorized tribes on or after May 30, 2000 must be approved by the EPA before they can be used as the basis for actions, such as establishing water quality-based effluent limitations or TMDLs, under the CWA.

15A NCAC 02B .0212 Fresh Surface Water Quality Standards for Class WS-I Waters
15A NCAC 02B .0214 Fresh Surface Water Quality Standards for Class WS-II Waters
15A NCAC 02B .0215 Fresh Surface Water Quality Standards for Class WS-III Waters
15A NCAC 02B .0216 Fresh Surface Water Quality Standards for Class WS-IV Waters
15A NCAC 02B .0218 Fresh Surface Water Quality Standards for Class WS-V Waters

Section (h) of each of the five WS designated use classifications was revised as follows:

(h) Toxic and other deleterious substances:
(i) Water quality standards (maximum permissible concentrations) to protect human health through water consumption and fish tissue consumption for noncarcinogens- in Class WS-V waters:
(A) Barium: 1.0 mg/l;
(B) Chloride: 250 mg/l;
~~(C) Manganese: 200 ug/l;~~
~~(D)~~(C) Nickel: 25 ug/l;
~~(E)~~(D) Nitrate nitrogen: 10 mg/l;
~~(F)~~(E) 2,4-D: ~~100 ug/l;~~70 ug/l;

Manganese

The DWR conducted a review of the effects of manganese on human health and taste and odor (organoleptic effects) in WS waters. As part of that evaluation, the State reviewed stream and groundwater data on how often manganese occurs in State waters. The DWR initiated this review because the State's monitoring data often showed levels of manganese that were higher than the State's criterion of 200 ug/l. The results of the review found studies that show high concentrations of naturally occurring manganese in both state surface water and groundwater. For example, a United States Geological Survey (USGS 1992) study indicated concentrations of manganese ranged from "less than 10 to 380 ug/l..." and that "...many mean concentrations of total manganese in stream water exceeded recommended limits..." A second USGS paper found a range of 30-640 ug/l manganese in the French Broad River and noted that the "geology of the region is the primary cause for these high...manganese concentrations." (USGS 1982)

In considering whether or not to remove the ambient water quality criterion for manganese from WS waters, the State reviewed the EPA recommendations both under the CWA and the Safe Drinking Water Act (SDWA). The EPA's currently recommended criterion for manganese under the CWA in freshwater is 50 ug/L. This value is not based on toxic effects, but rather is intended to minimize objectionable quality such as laundry stains and objectionable tastes in beverages (EPA 1986a). North Carolina's WS designated waters are considered safe for drinking, culinary, and food-processing purposes "following treatment required by the Division of Environmental Health" and "shall meet the Maximum Contaminant Level concentrations...which are specified in the national drinking water regulations and in the North Carolina Rules Governing Public Water Supplies, 15A NCAC 18C .1500." There is currently no recommended Maximum Contaminant Level (MCL) for manganese in treated drinking water under the SDWA, however, there is a Secondary MCL of 50 ug/L, established as a guideline for public water systems in managing drinking water systems for taste and odor. The DWR's review concluded that the Secondary MCL, "could be used by water suppliers, if ever warranted, to protect users from objectionable taste and/or staining of laundry." The EPA notes that a health advisory was published for manganese in drinking water of 50 mg/L, as well, which should also be evaluated by North Carolina (EPA 2004). The EPA has noted that it may update the currently recommended ambient water quality criterion for

freshwater manganese at some time in the future. NC has stated that they will review and consider the new recommendations once published.

After reviewing the EPA's recommendations under the CWA and the SDWA and its own data on manganese, the State concluded that there was "no evidence to conclude that discharges of manganese will impact any designed uses of NC's waters." In addition, the DWR has indicated that existing narrative criteria will be used to protect water supplies from any deleterious effects from manganese. The applicable criterion at 15A NCAC 02B .0211(12) states,

> "Oils, deleterious substances, colored, or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality or impair the water for any designated uses..."

The EPA has determined that North Carolina's WS uses will continue to be protected considering the changes to subsection 15A NCAC 02B .0212(h), 15A NCAC 02B .0214(h), 15A NCAC 02B .0215(h), 15A NCAC 02B .0216(h) and 15A NCAC 02B .0218(h) to remove the numeric criteria for manganese, since the State has committed to use the narrative criterion at 15A NCAC 02B .0211(12) as needed to address deleterious impacts of manganese. Therefore, these changes are consistent with the CWA section 303(c) and the implementing regulations at 40 C.F.R. section 131.11 and are approved by the EPA under CWA section 303(c).

2, 4 Dichlorophenoxyacetic acid (2, 4 D)

The DWR revised its 2, 4 D criterion for WS uses to update it with the most recently published reference dose information from the EPA's Integrated Risk Information System. This resulted in a revision of the criterion from 100 ug/l to 70 ug/l.

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that the changes to subsection 15A NCAC 02B .0212(h), 15A NCAC 02B .0214(h), 15A NCAC 02B .0215(h), 15A NCAC 02B .0216(h) and 15A NCAC 02B .0218(h) to update the criterion for 2, 4 D will protect North Carolina's WS uses and, therefore, are consistent with the CWA section 303(c) and the implementing regulations at 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c).

Many portions of this section were also modified for clarification, grammar, and reorganization. The EPA has reviewed these revisions and determined that they are non-substantive and, therefore, the EPA approves the revisions as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0220 Tidal Salt Water Quality Standards for Class SC Waters
General paragraph and Subparagraphs (1) through (6)

The following revisions were made to the General opening paragraph and Sections (1) through (9) of *Section 15A NCAC 02B .0220.*

> *General. The water quality standards for all tidal salt waters shall be the basic standards applicable to Class SC waters. Additional and more stringent standards applicable to other specific tidal salt water classifications are specified in Rules .0221 and .0222 of this Section.*

Action Levels, for purposes of National Pollutant Discharge Elimination System (NPDES) permitting, are specified in Item (20) of this Rule.

The new sentence added as the final sentence to the general paragraph references the use of action levels. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs. For the substantive discussion of the EPA's decision regarding revisions to action levels in tidal salt waters, see page 42.

The following subparagraphs were renumbered for alphanumeric reordering only:

(3) Chlorophyll a
(5) Dissolved oxygen
(7) Floating solids, settleable solids or sludge deposits
(8) Gases, total dissolved
(12) pH
(13) Phenolic compounds
(15) Radioactive substances
(16) Salinity
(17) Temperature

The EPA has reviewed these changes and determined that they are non-substantive and therefore, the EPA approves these revisions as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that this approval of these non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The following sentence came before all of the criteria in the old format prior to the alphabetical reorganization of the WQS.

~~*(3) Quality standards applicable to all tidal salt waters:*~~

The State indicated that this sentence was found to be redundant with the information in the General paragraph of this rule. The General paragraph listed just above this states that "*The water quality standards for all tidal salt waters shall be the basic standards applicable to Class SC waters.*" 15A NCAC 02B .0101 General Procedures provides a definition for Class SC waters which includes that "*Class SC: saltwaters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All saltwaters shall be classified to protect these uses at a minimum.*" The removal of this sentence does not change or revise the state WQS. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

New subparagraph (4) was created:

(4) Cyanide: 1 ug/l;

The new paragraph moves cyanide from its previous location at Rule .0220(m)(iv) and retains the same numeric value. Therefore, this revision is a non-substantive change to WQSs and the EPA approves the

revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

New subparagraph (6) was created to move the bacteria criteria into alphabetical order. This section also includes the strike-out as noted below. The state indicated that this language was found to be redundant and not needed. The EPA concurs that all provisions in these Rules are in accordance with the Federal Water Pollution Control Act and that the specific reference in this paragraph is not a substantive change to the criteria. The EPA has reviewed this change and determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

(6) *Enterococcus, including Enterococcus faecalis, Enterococcus faecium, Enterococcus avium and Enterococcus gallinarium: not to exceed a geometric mean of 35 enterococci per 100 ml based upon a minimum of five samples within any consecutive 30 days. [~~In accordance with 33 U.S.C. 1313 (Federal Water Pollution Control Act) for~~]For purposes of beach monitoring and notification, "Coastal Recreational Waters Monitoring, Evaluation and Notification" regulations (15A NCAC 18A .3400), available free of charge at: http://www.ncoah.com/ , are hereby incorporated by reference including any subsequent amendments;*

~~(e) Enterococcus, including Enterococcus faecalis, Enterococcus faecium, Enterococcus avium and Enterococcus gallinarium: not to exceed a geometric mean of 35 enterococci per 100 ml based upon a minimum of five samples within any consecutive 30 days. In accordance with 33 U.S.C. 1313 (Federal Water Pollution Control Act) for purposes of beach monitoring and notification, "Coastal Recreational Waters Monitoring, Evaluation and Notification" regulations (15A NCAC 18A .3400) are hereby incorporated by reference including any subsequent amendments;~~

15A NCAC 02B .0220 Tidal Salt Water Quality Standards for Class SC Waters Subparagraphs (9)

(9) *Metals:*

(a) *With the exception of mercury and selenium, tidal salt water quality standards for metals shall be based upon measurement of the dissolved fraction of the metals. Mercury and selenium shall be based upon measurement of the total recoverable metal;*

The EPA's most current national recommended water quality criteria for protection of aquatic life includes the recommendation that fresh and salt water criteria for metals (including specifically arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver and zinc) be expressed in terms of the dissolved metal in the water column. In 1993, the EPA provided additional guidance on the use of the dissolved fraction of metals stating that, "[t]he use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal" (EPA 1993).

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that this change to subsection 15A NCAC 02B .0220(9)(a) protects North Carolina's aquatic

life use and, therefore, is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. This change is approved by the EPA under CWA section 303(c).

The DWR is not currently adopting updated salt water criteria for mercury or selenium, leaving in place the previous values which are based on the total recoverable metal in the second sentence of paragraph (a). Therefore, the reference to those parameters is a non-substantive change to standards and the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

The following new provision was added in subparagraph (9)(b):

> *(b) Compliance with acute instream metals standards shall only be evaluated using an average of two or more samples collected within one hour. Compliance with chronic instream metals standards shall only be evaluated using averages of a minimum of four samples taken on consecutive days, or as a 96-hour average;*

After review of this new provision, the EPA has concluded that it is not a new or revised water quality standard and is therefore taking no action on this provision. This provision does not establish or change a level of protection related to the magnitude, duration, or frequency of water quality criteria nor establish designated uses. Rather, this provision describes the sufficiency or reliability of information necessary for the State to decide whether a water attains or does not attain a water quality standard for purposes of establishing TMDLs under section 303(d)(1)(A) of the Act. As such, this provision is not a water quality standard but is a methodology under section 303(d) of the Act. See 40 C.F.R. § 130.7(b)(6). While the provision was not reviewed by EPA as a new or revised water quality standard, it may be considered by EPA in reviewing lists of impaired waters submitted by the State under Section 303(d) of the CWA. The decision to not review this provision in no way confers agreement with the use of the provision for making attainment decisions.

The following new subparagraph was added under (9)(c).

> *(c) Metals criteria shall be used for proactive environmental management. An instream exceedence of the numeric criterion for metals shall not be considered to have caused an adverse impact to the aquatic community without biological confirmation and a comparison of all available monitoring data and applicable water quality standards. This weight of evidence evaluation shall take into account data quality and the overall confidence in how representative the sampling is of conditions in the waterbody segment before an assessment of aquatic life use attainment, or non-attainment, is made by the Division. Recognizing the synergistic and antagonistic complexities of other water quality variables on the actual toxicity of metals, with the exception of mercury and selenium, biological monitoring shall be used to validate, by direct measurement, whether or not the aquatic life use is supported.*

As detailed more fully under the disapproval of similar language for freshwater under 15A NCAC .02B .0211(f), the EPA has advised the DWR on multiple occasions, including directly addressing this provision in writing on multiple occasions that the EPA does not support biological confirmation for

toxics assessment.[7] The EPA views biological criteria as one component of a comprehensive water quality standards program that works in concert with – not in place of – the use of water quality criteria for toxics as detailed further below. The EPA incorporates by reference all of the discussion in the disapproval under 15A NCAC .02B .0211(f).

The EPA has determined that the changes to subsection 15A NCAC 02B .0220 (9)(c) do not protect North Carolina's aquatic life use and, therefore, are not consistent with the CWA section 303(c) or its implementing regulations found at 40 C.F.R. section 131.11. Therefore, these changes are disapproved by the EPA under CWA section 303(c). With today's disapproval of this section, the new water quality criteria for metals in salt water as approved shall be used for all purposes under the Act. The EPA recommends that the State delete the biological confirmation provision during the next triennial review.

North Carolina adopted updated acute and chronic metals values under 15A NCAC 02B .0220 (9)(d) for salt water as follows:

> *(d) Acute and chronic tidal salt water quality metals standards are as follows:*
> *(i) Arsenic, acute: WER· 69 ug/l;*
> *(ii) Arsenic, chronic: WER· 36 ug/l;*
> *(iii) Cadmium, acute: WER· 40 ug/l;*
> *(iv) Cadmium, chronic: WER· 8.8 ug/l;*
> *(v) Chromium VI, acute: WER· 1100 ug/l;*
> *(vi) Chromium VI, chronic: WER· 50 ug/l;*
> *(vii) Copper, acute: WER· 4.8 ug/l;*
> *(viii) Copper, chronic: WER· 3.1 ug/l;*
> *(ix) Lead, acute: WER· 210 ug/l;*
> *(x) Lead, chronic: WER· 8.1 ug/l;*
> *(xi) Mercury, total recoverable, chronic: 0.025 ug/l;*
> *(xii) Nickel, acute: WER· 74 ug/l;*
> *(xiii) Nickel, chronic: WER· 8.2 ug/l;*
> *(xiv) Selenium, total recoverable, chronic: 71 ug/l;*
> *(xv) Silver, acute: WER· 1.9 ug/l;*
> *(xvi) Silver, chronic: WER· 0.1 ug/l;*
> *(xvii) Zinc, acute: WER· 90 [ug/l;]ug/l; and*
> *(xviii) Zinc, chronic: WER· 81 ug/l;*
>
> *With the exception of mercury and selenium, acute and chronic tidal saltwater quality aquatic life standards for metals listed above apply to the dissolved form of the metal and apply as a function of the pollutant's water effect ratio (WER). A WER expresses the difference between the measures of the toxicity of a substance in laboratory waters and the toxicity in site water. The WER [is]shall be assigned a value equal to one unless any person demonstrates to the Division's satisfaction in a permit proceeding that another value is developed in accordance with the Water Quality Standards Handbook: Second Edition'published by the US Environmental Protection Agency (EPA-823-B-12-002), free of charge, at http://water.epa.gov/scitech/swguidance/standards/handbook/, hereby incorporated*

[7] See Appendix B. EPA letters to DWR dated April 30, 2009, August 10th, 2010, and January 3, 2014 and emails to DWR on August 22, 2014 and August 25, 2014.

by reference including any subsequent amendments. Alternative site-specific standards may also be developed when any person submits values that demonstrate to the Commissions' satisfaction that they were derived in accordance with the Water Quality Standards Handbook: Second Edition, Recalculation Procedure or the Resident Species Procedure", hereby incorporated by reference including subsequent amendments at http://water.epa.gov/scitech/swguidance/standards/handbook/. This material is available free of charge;

The EPA notes that the DWR is not currently adopting updated criteria for mercury or selenium, leaving in place the previous values which are based on the total recoverable metal. Those metals have been reordered for alphabetizing purposes only. As the numeric value did not change for either of these criteria, the EPA determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

For comparison purposes, all other salt water metals are listed in the chart below alongside the EPA's current national recommended criteria.

Metal (all values are dissolved)	**NCDWR's Criteria** (all values ug/l)	**EPA's National Recommended criteria** (all values ug/l)
Arsenic (acute)	69	69
Arsenic (chronic)	36	36
Cadmium (acute)	40	40
Cadmium (chronic)	8.8	8.8
Chromium VI (acute)	1100	1100
Chromium VI (chronic)	50	50
Copper (acute)	4.8	4.8
Copper (chronic)	3.1	3.1
Lead (acute)	210	210
Lead (chronic)	8.1	8.1
Nickel (acute)	74	74
Nickel (chronic)	8.2	8.2
Silver (acute)	1.9	1.9
Silver (chronic)	0.1	--
Zinc (acute)	90	90
Zinc (chronic)	81	81

With the exception of the chronic value for silver, the DWR is directly adopting the EPA's national recommended values for saltwater acute and chronic criteria for metals in saltwater.

The EPA initially published a national recommended criteria for silver in 1980 (EPA 1980). In that document, the EPA recommended that the total recoverable acute silver criteria should not exceed 2.3 ug/ at any time. However, data were not available to develop chronic criteria for salt water. In 1990, the EPA published draft chronic criteria for silver, but after public comment determined that more research was

needed. In a 1992 memo, the EPA addressed how to review chronic silver salt water criteria from states (EPA 1992b). That memo noted that, "States which choose, of their own accord, to take an approach which generates chronic standards, either from data in the 1980 final document, the 1990 draft or other sources, are taking an approach more stringent than EPA criteria, and these standards are approvable." In order to develop its chronic silver criterion, the DWR stated that it they applied a safety factor of 0.05 to the 2.3 ug/l acute criterion from EPA's 1980 publication generating a chronic value of 0.1 ug/l.

As discussed in the approval of the freshwater metals criteria, the EPA's most current national recommended water quality criteria for protection of aquatic life includes the recommendation that fresh and salt water criteria for metals (including specifically arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver and zinc) be expressed in terms of the dissolved metal in the water column. In 1993, the EPA provided additional guidance on the use of the dissolved fraction of metals stating that, "[t]he use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal" (EPA 1993).

As discussed in the review of the use of WERs under subparagraph .0211(11)(b), the use of WERs is consistent with the EPA's policy and guidance. The discussion in that section's review are incorporated into the review of this section by reference. The EPA concludes that the changes to subsection 15A NCAC 02B .0220(9)(d) to add in the use of a WER and to include a x1 multiplier in each of the criteria for the criteria in Table A is consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. Therefore, these changes are approved by the EPA under CWA section 303(c).The EPA strongly recommends that the first WERs developed by the State are reviewed in the study plan phase by the EPA to ensure that WERs that are developed meet the required procedures. The EPA looks forward to working with the State to ensure a quick review of the study plans so that the WERs may be used for CWA purposes once completed.

This section also allows for alternative site-specific standards to be developed using the Recalculation Procedure or the Resident Species Procedure in accordance with the *Water Quality Standards Handbook: Second Edition,* referenced as http://water.epa.gov/scitech/swguidance/standards/handbook/. In deriving site-specific criteria, the Recalculation Procedure (found at Appendix A of Appendix L of the WQS Handbook) takes into account the differences between the sensitivity of the species used in the national dataset in developing the national recommended criteria, and the organisms at the site. The Resident Species Analysis (see Chapter 3.7 - Developing Site-Specific Criteria of the WQS Handbook) accounts for that difference as well as the difference between the toxicity of the metal in lab water versus site water similar to a WER. Chapter 3.6 - Policy on Aquatic Life Criteria for Metals was updated to also include procedures to conduct a Streamlined Water-Effects Ratio Procedure for the Discharge of Copper that may also be used.

Considering the scientific and technical information supporting the 304(a) recommendations, the EPA has determined that all of the changes to subsection 15A NCAC 02B .0220(9)(d) protect North Carolina's aquatic life use and, therefore, are consistent with the CWA section 303(c) and 40 C.F.R. section 131.11. These changes are approved by the EPA under CWA section 303(c) for all purposes under the Act.

15A NCAC 02B .0220 Tidal Salt Water Quality Standards for Class SC Waters
Subparagraphs (10) through (19)

> *~~(9)~~(10) Oils, deleterious substances, colored, or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, aquatic life, and wildlife or*

adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. For the purpose of implementing this Rule, oils, deleterious substances, colored, or other wastes shall include substances that cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines under 40 C.F.R. 110.3;

(11) Pesticides:

(a) Aldrin: 0.003 ug/l;

(b) Chlordane: 0.004 ug/l;

(c) DDT: 0.001 ug/l;

(d) Demeton: 0.1 ug/l;

(e) Dieldrin: 0.002 ug/l;

(f) Endosulfan: 0.009 ug/l;

(g) Endrin: 0.002 ug/l;

(h) Guthion: 0.01 ug/l;

(i) Heptachlor: 0.004 ug/l;

(j) Lindane: 0.004 ug/l;

(k) Methoxychlor: 0.03 ug/l;

(l) Mirex: 0.001 ug/l;

(m) Parathion: 0.178 [ug/l;]ug/l; and

(n) Toxaphene: 0.0002 ug/l;

~~(g)~~(12) pH: shall be normal for the waters in the area, which ~~generally shall~~ range between 6.8 and ~~8.5~~ 8.5, except that swamp waters may have a pH as low as 4.3 if it is the result of natural conditions;

~~(h)~~(13) Phenolic compounds: only such levels as shall not result in fishflesh- tainting or impairment of other best usage;

(14) Polychlorinated biphenyls: (total of all PCBs and congeners identified) 0.001 ug/l;

~~(i)~~(15) Radioactive substances:

~~(i)~~(a) Combined radium-226 and radium-228: The ~~maximum~~ average annual activity level (based on at least one sample collected per quarter)~~four samples collected quarterly)~~ for combined radium226, and radium228 shall not exceed five -picoCuries- per liter;

~~(ii)~~(b) Alpha Emitters. The average annual gross alpha particle activity (including radium226, but excluding radon and uranium) shall not exceed 15 picoCuries- per liter;

~~(iii)~~(c) Beta Emitters. The ~~maximum~~ average annual activity level (based on at least one sample collected per quarter)~~four samples collected quarterly)~~ for strontium90 shall not exceed eight picoCuries- per liter; nor shall the average annual gross beta particle activity (excluding potassium-40 and other naturally occurring ~~radio-nuclides)~~ radionuclides exceed 50 picoCuries per liter; nor shall the ~~maximum~~ average annual activity level for tritium exceed 20,000 picoCuries per liter;

~~(j)~~(16) Salinity: changes in salinity due to hydrological modifications shall not result in removal of the functions of a PNA. Projects that are determined by the Director to result in modifications of salinity such that functions of a PNA are impaired ~~will~~ shall be required to employ water management practices to mitigate salinity impacts;

~~(k)~~(17) Temperature: shall not be increased above the natural water temperature by more than 0.8 degrees C (1.44 degrees F) during the months of June, July, and August nor more than 2.2 degrees C (3.96 degrees F) during other months and in no cases to exceed 32 degrees C (89.6 degrees F) due to the discharge of heated liquids;

(18) Trialkyltin compounds: 0.007 ug/l expressed as tributyltin;

~~(l)~~(19) Turbidity: the turbidity in the receiving water shall not exceed 25 Nephelometric Turbidity Units (NTU); ~~NTU;~~ if turbidity exceeds this level due to natural background conditions, the existing turbidity level shall not be increased. Compliance with this turbidity standard can be met when land management activities employ Best Management Practices (BMPs) [as defined by Rule .0202 of this Section] recommended by the Designated Nonpoint Source Agency (as defined by Rule .0202 of this Section). BMPs ~~must~~ shall be in full compliance with all specifications governing the proper design, installation, ~~operation~~ operation, and maintenance of such BMPs;

~~(m) Toxic substances: numerical water quality standards (maximum permissible levels) to protect aquatic life applicable to all tidal saltwaters:~~

~~(i) Arsenic, total recoverable: 50 ug/l;~~

~~(ii) Cadmium: 5.0 ug/l; attainment of these water quality standards in surface waters shall be based on measurement of total recoverable metals concentrations unless appropriate studies have been conducted to translate total recoverable metals to a toxic form. Studies used to determine the toxic form or translators must be designed according to the "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823-B-94-005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823-B-96-007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators;~~

~~(iii) Chromium, total: 20 ug/l;~~

~~(iv) Cyanide: 1.0 ug/l;~~

~~(v) Mercury: 0.025 ug/l;~~

~~(vi) Lead, total recoverable: 25 ug/l; collection of data on sources, transport and fate of lead shall be required as part of the toxicity reduction evaluation for dischargers that are out of compliance with whole effluent toxicity testing requirements and the concentration of lead in the effluent is concomitantly determined to exceed an instream level of 3.1 ug/l from the discharge;~~

~~(vii) Nickel: 8.3 ug/l; attainment of these water quality standards in surface waters shall be based on measurement of total recoverable metals concentrations unless appropriate studies have been conducted to translate total recoverable metals to a toxic form. Studies used to determine the toxic form or translators must be designed according to the "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823-B-94-005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823-B-96-007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators;~~

~~(viii) Pesticides:~~

~~(A) Aldrin: 0.003 ug/l;~~

~~(B) Chlordane: 0.004 ug/l;~~

~~(C) DDT: 0.001 ug/l;~~

~~(D) Demeton: 0.1 ug/l;~~

~~(E) Dieldrin: 0.002 ug/l;~~

~~(F) Endosulfan: 0.009 ug/l;~~

~~(G) Endrin: 0.002 ug/l;~~

~~(H) Guthion: 0.01 ug/l;~~

~~(I) Heptachlor: 0.004 ug/l;~~

~~(J) Lindane: 0.004 ug/l;~~

~~(K) Methoxychlor: 0.03 ug/l;~~

~~(L) Mirex: 0.001 ug/l;~~

~~(M) Parathion: 0.178 ug/l;~~

~~(N) Toxaphene: 0.0002 ug/l;~~

~~(ix) Polychlorinated biphenyls: (total of all PCBs and congeners identified) 0.001 ug/l;~~

~~(x) Selenium: 71 ug/l;~~

~~(xi) Trialkyltin compounds: 0.007 ug/l expressed as tributyltin.~~

The struck provisions for arsenic, cadmium, chromium, lead and nickel are replaced by new criteria as described in detail above. The criteria for the remaining criteria were moved into alphabetical order. As the numeric value did not change for these criteria, the EPA determined that it is non-substantive and therefore, the EPA approves the revision as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that is approval of this non-substantive change does not re-open the EPA's prior approval of the underlying substantive WQSs.

15A NCAC 02B .0220 Tidal Salt Water Quality Standards for Class SC Waters
Subparagraph (20)

~~(1)~~(20) Action Levels for Toxic ~~Substances:~~Substances Applicable to NPDES Permits:

(a) ~~Copper:~~Copper, dissolved, chronic: ~~3 ug/l;~~3.1 ug/l;

(b) ~~Silver:~~Silver, dissolved, chronic: 0.1 ug/l;

(c) ~~Zinc:~~Zinc, dissolved, chronic. ~~86 ug/l;~~81 ug/l

If the [~~chronic~~] ~~Action Levels~~action levels for any of the substances listed in this ~~Subparagraph~~Item (which are generally not bioaccumulative and have variable toxicity to aquatic life because of chemical form, solubility, stream ~~characteristics~~ characteristics, or associated waste characteristics) ~~are~~ shall be determined by the waste load allocation to be exceeded in a receiving water by a discharge under the ~~specified low~~ 7Q10 flow criterion for toxic ~~substances (Rule .0206 in this Section),~~substances, the discharger shall ~~be required to~~ monitor the chemical or biological effects of the discharge; efforts shall be made by all dischargers to reduce or eliminate these substances from their effluents. Those substances for which ~~Action Levels~~action levels are listed in this ~~Subparagraph~~Item ~~may~~shall be limited as appropriate in the NPDES permit if sufficient information (to be determined for metals by measurements of that portion of the dissolved instream concentration of the ~~Action Level~~action level parameter attributable to a specific NPDES permitted discharge) exists to indicate that any of those substances may be a causative factor resulting in toxicity of the effluent. ~~NPDES permit limits may be based on translation of the toxic form to total recoverable metals. Studies used to determine the~~

~~*toxic form or translators must be designed according to: "Water Quality Standards Handbook Second Edition" published by the Environmental Protection Agency (EPA 823-B-94-005a) or "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion" published by the Environmental Protection Agency (EPA 823-B-96-007) which are hereby incorporated by reference including any subsequent amendments. The Director shall consider conformance to EPA guidance as well as the presence of environmental conditions that limit the applicability of translators in approving the use of metal translators.*~~

Revision to Copper, Silver and Zinc as an Action Level

As the EPA has advised the DWR on multiple occasions, including directly addressing this provision in multiple letters,[8] the EPA does not support the maintenance of action levels. The EPA reiterates its previous comments. The EPA's Section 304(a) criteria were developed to take into account specific factors such as solubility and chemical form in determining the biologically available fraction available for uptake by biological organisms and, therefore, the fraction most likely to cause a toxic effect.

North Carolina's action level requirements, stated above, indicate that NPDES limits must be set for metals if information exists to indicate that a particular substance may be a *causative* factor resulting in the toxicity of the effluent. 40 C.F.R. 122.44(d)(1)(i) states that limits must be put in place to control pollutants which may be discharged at a level "which will cause, have the reasonable potential to cause or contribute to an excursion above any State water quality standard." This regulation does not indicate that the effluent must be the sole cause of toxicity before the parameter should be limited. The provision states that the pollutant should be limited under NPDES if it could cause or even if it could *contribute* to a water quality standards excursion.

This requirement is significant because there may often be multiple sources of pollutants in receiving waters, from non-point source run-off, from point sources and from storm water. No one facility or source may be the sole cause of the impairment, but rather multiple discharges contribute to the toxicity and excursion of water quality standards. Therefore, when a point source discharges zinc levels with a reasonable potential to cause or contribute to exceedence of water quality standards, that discharge must be limited. Surrounding states have limited zinc and copper in permits where there is reasonable potential to cause or contribute to the excursion of a water quality standard.

The Region recognizes that North Carolina has a strong WET testing program. WET testing can be "effective for controlling discharges containing multiple pollutants. It can also provide a method for addressing synergistic and antagonistic effects on aquatic life" from multiple pollutants. See 63 Fed. Reg. (page 36,768). However, where criteria exist to directly control toxic pollutants, those criteria should be used to limit the discharge of pollutants. WET should be used to address those instances where criteria may not be available to limit toxicity. The EPA's discussion of reconciling biological data, such as WET, with 'reasonable potential' analysis concludes "EPA would not support a radical shift away from chemical criteria and limits or toxicity criteria and limits. Those tools are simply too important as proven tools for assessing potential impact to surface waters and improving water quality." If needed, an effort should be made to refine the applicable criteria, through WERs and other tools, to ensure that appropriate criteria be developed for each facility. It is not protective, however, and is not consistent with EPA's permitting regulations, to defer permit limitations once there is reasonable potential to exceed the water

[8] See Appendix B. EPA letters to DWR dated April 30, 2009, August 20, 2010, and January 3, 2014 and emails to DWR on August 22, 2014 and August 25, 2014.

quality criteria for toxics.

The EPA has determined that the changes to subsection 15A NCAC 02B .0211(20) do not protect North Carolina's aquatic life use and, therefore, are not consistent with the CWA section 303(c) or its implementing regulations found at 40 C.F.R. section 131.11. These changes are disapproved by the EPA under CWA section 303(c). With today's disapproval of this section, the new water quality criteria for metals as approved shall be used for all purposes under the Act. For more discussion on the implications of the EPA's disapproval, see pages 30-31.

Review of Water Quality Standards Variances

Under 40 C.F.R. section 131.20, each state is required, at least once every three years, to re-examine any water body segment with water quality standards which do not include the uses specified in section 101(a)(2) of the CWA to determine if any new information has become available to indicate the uses are now attainable. North Carolina has three variances from water quality standards in the State, which are subject to this triennial evaluation requirement. During the triennial, the State provided a notice of an opportunity to comment on and conducted a review of each of the variances to water quality standards.

Evergreen Packaging (formerly Blue Ridge Paper Products, NPDES Permit No. NC0000272) has a water quality standards variance for color. The most recent permit reissuance and variance renewal was issued by the State on July 21, 2010. The EPA reviewed and approved the variance on December 21, 2010. A comprehensive review and evaluation of the status of the variance is ongoing concurrent with the facility's permit reissuance process, which will include public hearings and opportunity for comments. Comments received by the State during the triennial will be considered during the permit and variance review as well.

Both Mount Olive Pickle Company (NPDES Permit No. NC0001074) and Bay Valley Foods (formerly Dean Pickle Products, NPDES Permit No. NC0001970) have excess sodium chloride from pickle processing. Limited technology exists for removal of sodium chloride from the waste stream. New variances were issued by the State on March 29, 2011. The EPA approved those variances on September 27, 2011. The information collected during this triennial review will be used for the next scheduled permit and variance review.

APR 6 2016

Date

Heather McTeer Toney
Regional Administrator

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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JUL 19 2017

Honorable Virgil A. Siow
Governor
Pueblo of Laguna
P.O. Box 194
Laguna, NM 87026

Dear Governor Siow:

The Environmental Protection Agency (EPA) has completed its review of the *Pueblo of Laguna Water Quality Standards*. These standards were adopted by the Pueblo of Laguna in April 2014, and submitted to the EPA for approval in September 2014.

I am pleased to inform you that the EPA is approving most of the provisions in the standards, pursuant to section 303(c) of the Clean Water Act and the implementing regulation at 40 CFR part 131, as documented in the enclosure. EPA's approval of the standards is applicable to waters included in the agency's December 2016 approval of the Pueblo of Laguna's request for treatment in a similar manner as a state to administer the Clean Water Act (CWA) section 303(c) and section 401 programs.

The Agency considers specific items in the *Pueblo of Laguna Water Quality Standards* to be assessment or implementation provisions, rather than elements of water quality standards under Clean Water Act section 303(c). Part II of the enclosure summarizes these provisions, which do not require EPA review under CWA section 303(c). EPA also is taking no action on the definition for "Groundwater" and "Pueblo Waters" in Section 11-2-3, as applied to waters beyond the scope covered by the CWA, and on other provisions applicable to groundwater resources.

Section 7(a)(2) of the Endangered Species Act requires that all federal agencies engage in consultation to ensure their actions are not likely to jeopardize the continued existence of any threatened or endangered species or result in adverse modification of designated critical habitat. EPA has determined that approval of the *Pueblo of Laguna Water Quality Standards* will have no effect on federally-listed threatened and endangered species or on critical habitat.

We look forward to continuing to work with you and your staff on the Pueblo of Laguna's water quality program. If you have any questions or concerns, please contact me at (214) 665-7101 or have your staff contact Diane Evans at (214) 665-6677.

Sincerely,

William K. Honker, P.E.
Director
Water Division

Enclosure

cc: Greg Jojola, Director, Environmental Program
Adam Ringia, Director, Environmental & Natural Resources Dept.

Record of Decision for approval of the *Pueblo of Laguna Water Quality Standards*
July 2017

The Environmental Protection Agency (EPA) has completed its review of the *Pueblo of Laguna Water Quality Standards* (adopted April 2014) and determined that the standards are approvable under section 303(c) of the Clean Water Act (CWA). EPA's review found that the standards:

- include designated uses consistent with CWA sections l0l(a)(2) and 303(c) for surface waters;
- contain narrative and numeric criteria protective of those designated uses;
- include an antidegradation policy consistent with 40 CFR 131.12;
- include adequate documentation of methods and analyses used in developing the standards; and
- were duly adopted pursuant to applicable legal procedures.

This enclosure provides a summary of the provision and the action taken by EPA, including: Part I. Provisions in the 2014 WQS that are approved for purposes of Clean Water Act (CWA) section 303(c); and Part II. Provisions in the 2014 WQS for which EPA is taking no action under CWA section 303(c).

In some cases, EPA has determined that a particular provision is not a water quality standard under CWA section 303(c). EPA is taking no action on these provisions because they are not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body. Also, the *Pueblo of Laguna Water Quality Standards* include provisions related to protection of ground water. EPA does not have the authority to approve or disapprove groundwater provisions that are unrelated to surface water, thus is taking no action on these provisions.

I. PROVISIONS IN THE 2014 WQS THAT ARE APPROVED FOR PURPOSES OF CWA SECTION 303(C)

Subchapter I. General Provisions

Subchapter 1 includes narrative provisions which identify the Pueblo of Laguna's authority to adopt and implement water quality standards; discuss the applicability and modification of the standards; and, establish procedures for implementation of the standards.

Section 11-2-1. Authority and Purpose states that the Pueblo of Laguna is exercising its authority to adopt and enact the water quality standards in order to protect, maintain and improve the quality of the tribe's waters.

Section 11-2-2. Applicability identifies the applicability of the water quality standards to all Pueblo waters and to all activities and persons within the Pueblo of Laguna.

Under Section 11-2-3. Definitions, the Pueblo of Laguna adopted definitions for the following terms:

Acute Criteria	Ceremonial Use	Designated Use
Acute Toxicity	Chronic Criteria	Director
Attainable Use	Chronic Toxicity	Domestic Water Supply
Aquatic and Wildlife Habitat	Clean Water Act	Drinking Water
Best Management Practices	Coldwater Fishery	Effluent
Bioaccumulation	Criteria	Ephemeral Water

Existing Uses
Fish Culture
Geometric Mean
Groundwater *
Groundwater Recharge
High Quality Coldwater Fishery
Industrial Water Supply
Intermittent Stream
Irrigation
Livestock and Wildlife Watering
Marginal Coldwater Fishery
Mixing zone
Nonpoint Source
NTU
Oil
Outstanding Tribal Resource Waters
Perennial Water
Person
Point Source
Pollutant
Pollution
Primary Human Contact
Program Manager
Pueblo of Laguna
Pueblo Waters *
Secondary Human Contact
Turbidity
Warmwater Fishery
Water Body
Wetlands

* Please see Part II of this enclosure regarding EPA's action on the definitions of Groundwater and Pueblo Waters

Section 11-2-4. Authority and Responsibilities delegates authority to the administer the water quality standards to the Laguna Environmental Program, under the direction of the Laguna Environmental and Natural Resources Department, and as approved by the Tribal Council.

Section 11-2-5. Revisions to the Laguna Water Quality Standards, Part A states that the Pueblo of Laguna will conduct triennial revisions of standards to incorporate new information and will provide an opportunity for public comment on proposed revisions. Part B and Part C include the Pueblo of Laguna's administrative processes for public participation on revisions of water quality standards, as well as the process for judicial review of challenges to the standards. (Please see Part II of this enclosure regarding EPA's action on Section 11-2-5, parts B and C)

Section 11-2-6. Severability states that if any provision of the standards is held to be invalid to a person or circumstance, the remaining provisions in the standards and the application of the provision to other persons and circumstances are not affected.

Section 11-2-8. Collaboration with Federal and State Agencies states that the Pueblo of Laguna will collaborate with state and federal agencies for managing water resources.

> **EPA review:** EPA's review found that the provisions identified above support the implementation of the water quality standards and are consistent with the goals of CWA section 101(a)(2) and section 303(c), the federal regulation at 40 CFR part 131, and EPA guidance. Sources of the definitions include federal statutes, EPA regulations and guidance, and other technical references.

Subchapter II. Antidegradation Policy and Implementation Policy

Section 11-2-21. Antidegradation Policy contains provisions to maintain and protect exiting uses and water quality; protect high quality waters; and maintain and protect waters of exceptional recreational, cultural or ecological significance, which may be designated as an Outstanding Tribal Resource Water.

The antidegradation policy requires that prior to allowing a lower level of water quality in high quality waters, the following actions will occur:

- an opportunity for public comment will be provided
- regulatory requirements for point sources and best management practices for control of nonpoint sources will be evaluated; and
- the need for economic or social development will be documented.

The antidegradation policy also states that implementation methods consistent with CWA section 316 will be used where there may be potential impacts from thermal discharges.

Under Section 11-2-22. Implementation, the Environmental Program is designated to implement the *Pueblo of Laguna Water Quality Standards*. The Implementation Plan outlines activities that the Department of Natural Resources will use to implement the standards. These activities include: monitoring and assessment of Pueblo waters; review of draft permits; issuance of section 401 certification for federal permits; coordination with other Indian tribes, and local, state and federal agencies; implementation of inspection programs; evaluation of current wastewater systems; assistance with the implementation of best management practices; evaluation of instream flows; review of antidegradation requirements for regulated activities, and implementation of policies to protect Outstanding Tribal Resource Waters. Section 11-2-22 also states that standards may be revised where it has been determined that attainable water quality is less than designated uses, consistent with the federal regulation at 40 CFR 131.10(g).

> **EPA review:** The antidegradation policy and implementation plan in Subchapter II are consistent with the intent of the CWA and the implementing regulation. EPA is approving Subchapter II of the *Pueblo of Laguna Water Quality Standards.*

Subchapter III. Narrative Water Quality Standards

The provisions in Subchapter III apply to all waters of the Pueblo of Laguna. Section 11-2-31. General Standards includes narrative standards ("free froms") to protect surface waters from substances or contaminants that: form bottom deposits that may affect aquatic biota; float as objectionable oils, scum, foam, grease or other suspended materials; produce objectionable color, odor or taste in water; cause objectionable taste in fish or other edible animal or plant life; produce nuisance conditions that promote algal growth or the presence of non-indigenous of plant or animal life; are pathogenic; or result in turbidity that reduces light transmission or alters color or visibility.

Section 11-2-31 also includes narrative criteria for pollutants which may adversely affect human health, public safety or public welfare, or would adversely affect indigenous plant and animal communities. Part A includes numeric criteria for oil and grease, color, and turbidity. Part C contains a narrative criterion precluding concentrations of toxic materials which are harmful to human, animal, plant or aquatic life. An allowance for limited chronic toxicity within a mixing zone is included in Part C, however, acute toxicity is prohibited in surface waters. Part D includes narrative criteria to prohibit large debris, such as trash or equipment, in Pueblo waters.

> **EPA review:** The narrative and numeric criteria established in Section 11-2-31 are consistent with EPA's guidance for criteria to protect aesthetics and general water quality. The numeric criteria for oil and grease, color and turbidity are also based on EPA's recommendations published in the Red Book and on information from other documents. [1] The Pueblo of Laguna adopted human health criteria to ensure protection of humans consuming fish and to ensure protection of humans for primary and secondary contact recreation. EPA is approving Section 11-2-31, as it is consistent with CWA section 303(c) and the implementing regulation at 40 CFR 131.11.

Section 11-32-2. Temperature includes narrative and numeric criteria to protect aquatic life uses in the Pueblo of Laguna's surface waters. The provision includes maximum temperature differentials (5 ^{0}F in steams or 3 ^{0}F in lakes).

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[1] USEPA. *Quality Criteria Water 1976* (the "Red Book"). Office of Water and Hazardous Materials. U.S. Environmental Protection Agency. Washington, DC. 256 pp.

EPA review: The narrative and numeric criteria for temperature are based on EPA's section 304(a) criteria recommendations.[2] This provision is intended to protect aquatic life species from anthropogenic increases in water temperature and complements the numeric criteria applicable under the fishery uses in Section 11-2-41. EPA approves the temperature criteria established in Section 11-32-2.

Section 11-2-33. Minerals includes a narrative criterion which prohibits an increase more than a third over naturally-occurring levels or alteration of existing levels by discharges or instream activities.

EPA review: The narrative criterion is consistent with recommendations published in the Federal Water Pollution Control Administration's Green Book to protect aquatic life from dissolved materials. EPA is approving the minerals criteria in Section 11-2-33.

Section 11-2-34. Radioactive Materials includes a narrative criterion that specifies standards published under the Safe Drinking Water Act (SDWA) shall not be exceeded. The provision also allows higher levels, where naturally-occurring, unless a more stringent standard to protect a designated use is applicable.

EPA review: The narrative criterion is consistent with section 303(c) of the CWA and the Agency's implementing regulation at 40 CFR 131.11. EPA approves Section 11-2-34. Radioactive Materials, insofar as the standards address radioactive materials that are "pollutants" under the CWA. EPA's regulations define "pollutant" to include radioactive materials except those regulated under the Atomic Energy Act of 1954, as amended. (See 40 CFR 122.2). See Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1 (1976).

Section 11-2-35. Determining Compliance with Narrative Standards identifies technical references for assessing the narrative criterion for toxic substances and additional references for implementation of the narrative criteria in sections 11-2-31, 11-2-32 and 11-2-33.

EPA review: The narrative criterion and implementing provisions are consistent with EPA guidance. EPA approves Section 11-2-35.

Section 11-2-36. Biological Criteria includes a narrative criterion for protection of the biological integrity of the aquatic life community. The provision states that assessment of biological integrity will be assessed using the fish community and other components of the aquatic community, as compared with waters "least-disturbed" conditions in the Middle Rio Grande Basin.

EPA review: The narrative provision establishes the Pueblo of Laguna's intent and authority to protect water resources based on a direct measure of wildlife and aquatic community health. EPA finds that the provision in Section 11-2-36 is consistent with EPA guidance and the goals of the CWA and approves the narrative biological criterion.

Section 11-2-37. Mixing Zones includes a provision to allow mixing zones for chronic criteria in perennial streams, lakes and reservoirs. The mixing zone policy requires that narrative water quality standards in 11-2-31 be met and that a zone of passage for aquatic life be maintained. Acute toxicity, including exceedances of acute numeric criteria, is prohibited. Chronic toxicity within the mixing zone is limited to a portion of a waterway. The size of the mixing zones may be limited by cross-sectional area or by a percentage of stream flow. Mixing zones are not allowed for the following bioaccumlative

[2] Federal Water Pollution Control Administration. 1968. Water Quality Criteria (the "Green Book"), Report of the National Technical Advisory Committee to the Secretary of the Interior. U.S. Department of the Interior. Washington, DC. 234 pp.

pollutants: chlordane, DDT and metabolites, dieldrin, dioxin, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, lindane, mercury, polychlorinated biphenyls and toxaphene.

> **EPA review:** The mixing zone policy follows the recommendations found in EPA's *Water Quality Standards Handbook* (see Chapter 5) and in the Great Lakes Guidance established in 40 CFR part 132.[3] The designated uses in the water quality standards are required to be maintained in all parts of the water body. EPA approves Section 11-2-37. Mixing Zones.

Section 11-2-38. Wetlands includes goals for the protection of wetlands, which include the attainment of existing uses and implementation of the antidegradation policy. The provision identifies wetlands, other than those constructed for waste treatment, as waters of the Pueblo of Laguna. Section 11-2-38 includes narrative criteria to maintain water quality at natural background levels, within the normal range of variation of specific wetlands.

> **EPA review:** The narrative provision establishes the Pueblo of Laguna's intent and authority to protect wetlands based on biological and physical characteristics. EPA finds that this provision is consistent with EPA guidance and the goals of the CWA. EPA is approving Section 11-2-38. Wetlands.

Subchapter IV. Designated Uses and Associated Numeric Water Quality Standards

Section 11-2-41 includes designated uses, with narrative and numeric criteria to support uses. Additional criteria to support designated uses are found in the appendices of the *Pueblo of Laguna Water Quality Standards*. Please see Part II of this enclosure regarding EPA's action on the application of designated uses to groundwater.

Part A Drinking Water and Part B. Domestic Water Supply Use. The Drinking Water use is intended to provide water quality such that disinfection or other treatment is not needed. The Drinking Water use is protected by the criteria in Appendix I. Organoleptic Criteria and the criteria in Appendix V. Table 1. Human Health Criteria to protect for consumption of water and organisms and consumption of organisms only. The Domestic Water Supply use is intended to protect sources that may be used as a potable water supply. This use is protected by the criteria in Appendix V. Table 2. Standards for Domestic Water Supply.

> **EPA review:** The criteria in Appendix I and Appendix V are protective of the Drinking Water and Domestic Water Supply uses. EPA approves the Drinking Water use and the Domestic Water Supply use. Please see Part II of this enclosure regarding EPA's actions on the application of these designated uses and the criteria in Appendix V. Table 2 to groundwater.

Part C. Groundwater Recharge. The Pueblo of Laguna adopted the Groundwater Recharge use to protect surface waters that are a source of groundwater. This use is protected by the criteria in Appendix V. Table 2. Standards for Domestic Water Supply.

> **EPA review:** EPA approves the Groundwater Recharge use as the criteria in Table 2 of Appendix V are protective of the uses. Please see Part II of this enclosure regarding EPA's actions on the application of designated uses and the criteria in Appendix V. Table 2 to groundwater.

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[3] USEPA.1994. *Water Quality Standards Handbook: Second Edition.* Office of Water. U.S. Environmental Protection Agency. Washington D.C. EPA 823-B-94-005a. Portions of 1994 edition, with updated sections available at: http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm

Part D. Primary Human Contact/Ceremonial. The Primary Human Contact/Ceremonial use protects religious, traditional and cultural purposes by members of the Pueblo of Laguna. Criteria for *Escherichia coli (E. coli)* and enterococci were adopted to protect this use. The criteria for *E. coli* include a geometric mean value and a single sample maximum. The criterion for enterococci is based on a geometric mean. A narrative criterion to prevent nuisance conditions was also adopted under this use.

The human health criteria in Table 1 of Appendix V for consumption of water and organisms and consumption of organisms only are also applicable to protect this use. Criteria for the following substances are also applicable: diazinon, ethylbenzene, methoxychlor, 2,4-dichlorphenoxyzcetic acid, toluene, trihalomethanes, barium, beryllium, cadmium, chromium, cyanide, fluoride, trichloroethylene, 1,1,1-trichloroethane, xylenes, antimony, total inorganic nitrogen, mercury, selenium and thallium.

> **EPA review:** The Pueblo of Laguna adopted criteria for the Primary Human Contact/Ceremonial use based on EPA's 1986 recreational criteria document.[4] The risk level of 4 illnesses/1000 swimmers for the *E. coli* criteria (based on "highly credible gastrointestinal illness"), is within the range that EPA has determined to be acceptable in the agency's updated criteria document.[5] The risk level of the enterococci criterion is 32 illnesses/1000 swimmers is included in EPA's current criteria recommendations. The narrative criterion prohibiting nuisance conditions is protective of the use. The numeric criteria for toxic substances are based on SDWA values, are also protective, and are superseded by any more stringent criteria in Table 1 of Appendix V. EPA approves the Primary Human Contact/Ceremonial use and the criteria in Part D.

Part E. Secondary Human Contact. The Secondary Human Contact use is established to protect activities such as fishing and boating. Criteria for *E. coli* are based on an illness rate of 8 illnesses/1000 swimmers were adopted to protect this use and include a geometric mean and a single sample maximum. A geometric mean criterion of 33 colonies/100 ml for enterococci was also adopted. A pH criterion (range) was adopted, along with a narrative criterion to prevent nuisance conditions.

> **EPA review:** The criteria adopted for the Secondary Human Contact use based on EPA's 1986 recreational criteria document. The risk level for the *E. coli* criteria is protective of the use and within the range that EPA has determined to be acceptable under CWA section 303(c). The narrative criteria prohibiting nuisance conditions is protective of the use. The criteria for pH are consistent with recommendations in EPA's Blue Book.[6] EPA approves the Secondary Human Contact use and the criteria in Part E.

Part F. Wildlife Habitat. The Pueblo of Laguna adopted a wildlife habitat use to protect water used by non-domesticated animals. Criteria to protect the wildlife habitat use include a narrative criterion to protect animal and plant species from substances which bio-accumulate and numeric criteria for DDT and metabolites, polychlorinated biphenyls (PCBs), mercury and selenium.

> **EPA review:** EPA has not established nationwide numeric criteria recommendations to protect wildlife, but has published criteria for a limited number of substances and a methodology to calculate criteria under the federal regulation at 40 CFR part 132 (Water Quality Guidance for the Great Lakes System). The narrative criterion allows the Pueblo of Laguna to use EPA's methodology or other information to interpret the criterion as necessary. The mercury criterion of

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[4] USEPA. 1986. U.S. EPA 1986. EPA's Ambient Water Quality Criteria for Bacteria – 1986. U.S. Environmental Protection Agency: Washington, D.C. EPA440/5-84-002. 24 pp.

[5] USEPA. 2012. *Recreational Water Quality Criteria.* EPA-820-F-12-058. U.S. Environmental Protection Agency. Washington, D.C. 69 pages.

[6] National Academy of Sciences, National Academy of Engineering. 1973. *Water Quality Criteria 1972.* EPA-R3-73-003. U.S. Government Printing. Office. Washington, D.C.

0.0011 ug/L in the *Pueblo of Laguna Water Quality Standards* is approximately the same as the wildlife criterion (0.0013 ug/L) in 40 CFR part 132. The selenium criterion of 2 ug/L value is based on a previous recommendation from the U.S Fish and Wildlife Service to be protective of threatened or endangered species. EPA is approving the Wildlife Habitat use, the narrative criteria to protect the use and the numeric criteria for mercury and selenium. Please see Part II of this enclosure regarding EPA's action on the numeric criteria for DDT and PCBs.

Part. G. High Quality Coldwater Fishery, Part H. Coldwater Fishery, and Part I. Warmwater Fishery. The Pueblo of Laguna adopted three fishery uses to support different aquatic communities. A dissolved oxygen criterion of 6.0 mg/L and a temperature criterion of 20 °C were adopted under the High Quality Coldwater Fishery and the Coldwater Fishery uses. A dissolved oxygen criterion of 5.0 mg/L and a maximum temperature criterion of 32.2 °C were adopted to protect the warmwater use.

For pH criteria, ranges of 6.6 – 8.8 for the High Quality Coldwater Fishery and Coldwater Fishery uses and 6.0 -9.0 for the Warmwater Fishery use were adopted. A turbidity criterion of 10 NTU and a conductivity criterion of 300 umhos/cm (unless the natural background is higher) were adopted to protect the High Quality Coldwater Fishery use. A reference to the ammonia criteria in Appendix III are included under each fishery use. Criteria for total residual chlorine of 2 ug/L and 11 ug/L, apply to the High Quality Coldwater Fishery use, and to the Coldwater Fishery and Warmwater Fishery uses, respectively.

EPA review: The designated uses are protective of the existing aquatic life uses in surface waters of the Pueblo of Laguna. The criteria for dissolved oxygen, temperature, pH and chlorine are based on EPA's recommendations published under CWA section 304(a). The chlorine criterion of 2 ug/L to protect the high quality coldwater fishery use is based on recommendations previously provided by the U.S. Fish and Wildlife Service. The conductivity and turbidity criteria for the high quality coldwater Fishery use is based on the New Mexico *Standards for Interstate and Intrastate Surface Waters* (current or previous versions). The uses and criteria are also protective of downstream uses established by the state of New Mexico and the Pueblo of Isleta. EPA is approving the High Quality Coldwater Fishery use, the Coldwater Fishery use, the Warmwater Fishery use, and the criteria under each of the fishery uses.

Part J. Fish Culture. The Pueblo of Laguna adopted the Fish Culture use to protect waters where fish are raised. The criteria in Section 11-2-31. General Standards are applicable to the Fish Culture use.

EPA review: The criteria in Section 11-2-31 are protective of the Fish Culture use. In addition, the High Quality Fishery use and associated criteria are applicable to each water body designated with a Fish Culture use. EPA is approving the Fish Culture use.

Part K. Aquatic Life. The Pueblo of Laguna adopted the Aquatic Life use, to complement the fishery uses established under Part G, Part H and Part I. Criteria to protect the Aquatic Life use are found in Appendix II. Aquatic Life Criteria and in Appendix III. Ammonia Criteria.

EPA review: The criteria in Appendices II and III are based on recommendations published under CWA section 304(a) and are protective of the Aquatic Life use. EPA is approving the Aquatic Life use.

Part L. Irrigation. The Pueblo of Laguna adopted numeric criteria for the following substances to protect the Irrigation use: aluminum, boron, cobalt, fluoride, lithium, molybdenum, and vanadium. For uranium, the narrative criterion under Section 11-2-34. Radioactive Materials is applicable.

EPA review: The criteria for the Irrigation use are based on EPA's recommendations published in the Blue Book and are protective of the use. EPA approves the Irrigation use.

Part M. Livestock and Wildlife Watering. The Pueblo of Laguna adopted criteria for the following substances to protect the Livestock and Wildlife Watering use: aluminum, arsenic, boron, cadmium, chromium, cobalt, copper, fluoride, total mercury, selenium and vanadium.

> **EPA review:** The criteria for the Livestock and Wildlife Watering use are based on EPA's recommendations published in the Blue Book and are protective of the use. EPA approves the Livestock and Wildlife Watering use.

Part N. Industrial Water Supply. The Pueblo of Laguna adopted the Industrial Water Supply use where a water body is used for the production of goods or services. Criteria to protect this use are found in Section 11-2-31. General Standards.

> **EPA review:** EPA has not established recommended criteria for industrial water supplies, which is a non-101(a)(2) use under the Clean Water Act. EPA's Blue Book includes ranges of values for some substances used by different industries (e.g., textiles, paper mills). The Industrial Water Supply use is not currently designated for any waters in the *Pueblo of Laguna Water Quality Standards*. The narrative and numeric criteria in Section 11-2-31 are protective of this use. The values published in the Blue Book could be used to interpret the narrative criterion, in the event that the Industrial Water Supply use is designated in a future revision of the water quality standards. EPA approves the Industrial Water Supply Use.

Part O. Outstanding Tribal Resource Waters. The Pueblo of Laguna adopted the Outstanding Tribal Resource Waters use to provide the highest level of protection to unique sacred and cultural resources. This use is protected by the human health criteria in Table 1 of Appendix V for consumption of water and organisms and consumption of organisms only.

> **EPA review:** The criteria in Appendix V are protective of the use. EPA approves the Outstanding Tribal Resource Waters use.

Section 11-2-42. Designated Use Modifications. This section references Section 11-2-5 of the standards and the federal regulation at 40 CFR 131.10 for modifying the uses or establishing a subcategory a use.

> **EPA review:** The provisions identified above support the implementation of other provisions in the water quality standards and are consistent with the CWA, the federal regulation at 40 CFR Part 131, and EPA guidance. EPA approves Section 11-2-42.

Section 11-2-43. Designated Use Table. Section 11-2-43 assigns designated uses for individual surface water bodies and for ground water aquifers and formations.

The following uses apply to all surface waters: Primary Human Contact/Ceremonial, Wildlife Habitat, Aquatic Life, and Livestock and Wildlife Watering. The Secondary Human Contact use is designated for all surface waters, with the exception of wetlands.

The Outstanding Tribal Resource Waters use is designated for mountain streams and springs, the Rio Paguate above the Jack Pile Mine, Water Canyon Creek and Encinal Creek. The Drinking Water use is also designated for these same waters, and for mountain ponds.

The High Quality Coldwater Fishery use and the Fish Culture use are designated for mountain ponds, mountain streams and springs, and for the Rio Paguate above Jack Pile Mine. Water Canyon Creek is also designated with the High Quality Coldwater Fishery use. The Coldwater Fishery use is designated for Encinal Creek. The Warmwater Fishery use is designated for the Rio Paguate below the Jack Pile Mine and Encinal Creek.

The Domestic Water Supply use is designated for all surface waters, with the exception of the Rio Paquate below the Jack Pile Mine and the Rio Puerco. The Irrigation Use is designated for the Rio San Jose, the Rio Paguate (above and below the Jack Pile Mine), Water Canyon Creek, Encinal Creek and irrigation ditches. The Industrial Water Supply use is not currently designated for any surface waters.

> **EPA review:** The designated uses are consistent with the goals established in CWA section 101(a)(2) and the implementing regulation at 40 CFR part 131 and are approved by EPA. Please see Part II of this enclosure regarding EPA's action on the application of designated uses to groundwater on page 28 of the *Pueblo of Laguna Water Quality Standards*.

Section 11-2-44. Application and Construction includes provisions for implementation of water quality standards. Part A includes a requirement that the most stringent standard necessary to protect all uses be applied in a water body with multiple designated uses. Part B requires that standards for total mercury, total DDT and metabolites, and total PCBs be met at all stream flows, but allows other pollutants to be implemented using a critical low flow. Human health criteria are implemented using the harmonic mean flow, with a modified formula for calculation of critical flow in ephemeral waters. Part B also includes a critical design flow of 4Q3 for the implementation of numeric criteria, other than human health criteria. Part C states that protection of designated uses shall provide for the attainment of uses in downstream waters. Part D specifies that the standards will be used to manage discharges from both point and nonpoint sources of pollution, rather than to control natural phenomena.

> **EPA review:** EPA's derivation of criteria published under CWA section 304(a) includes magnitude, duration and frequency components. Implementation of numeric criteria through a critical low flow value is the process which accounts for (and limits) the frequency of allowable excursions of the criteria. Use of the 4Q3 critical flow is consistent with the approach used by the state of New Mexico and also provides for protection of uses in the downstream waters of the Pueblo of Isleta. EPA approves the provisions in Section 11-2-44.

Section 11-2-45. Additional Numeric Water Quality Criteria includes a reference to the numeric criteria in Appendices I – III to protect aquatic life and human health.

> **EPA review:** EPA approves the provision at Section 11-2-45, as these criteria support the designated uses in Subchapter IV. Please see below for review of the numeric criteria in each appendix.

Subchapter V. Sampling and Analysis, Variances, and Exceedances

Section 11-2-52. Variances allows the Pueblo of Laguna to approve a variance to a water quality standard for a point source discharge, under specific circumstances. The provision requires that the facility document that it is not technically feasible to achieve compliance with the standard within three years and that the cost of treatment would result in substantial and widespread economic and social impact. Re-evaluation of the variance is required at least every three years, and additionally when a permit is issued or re-issued under the National Pollutant Discharge Elimination System (NPDES). Compliance with technology-based limits is required and other point sources will be required to meet applicable standards. An applicant for a variance must submit detailed information on the existing control technologies in place, and on the technologies available to achieve compliance. Section 11-2-52 also includes the requirement for public participation on a proposed variance and submittal to EPA for approval. This provision also specifies that variances are not allowed in NPDES permits discharging to Outstanding Tribal Resource Waters.

> **EPA review:** Although the Pueblo of Laguna standards were adopted prior to EPA's revision of the federal regulation in 2015, the variance provision includes the elements outlined in the

updated regulation. The Pueblo of Laguna's provision identifies factor 6 (economics) of 40 CFR 131.10(g) as the basis for a variance requests. If appropriate, the Pueblo of Laguna could also allow a variance based on factors 1-5 of 40 CFR 131.10(g). EPA approves the variance provision, as it is consistent with the federal regulation at 40 CFR 131.14.

Section 11-2-53 Compliance Schedules allows a schedule to be included in an NPDES permit, provided that compliance with the standard be met at the earliest practicable time. This provision also specifies that compliance schedules are not allowed in NPDES permits discharging to Outstanding Tribal Resource Waters.

EPA review: EPA's review finds that the compliance schedule provision supports the implementation of other provisions in the water quality standards and is consistent with the federal regulations at 40 CFR 122.47(a)(1) and 40 CFR 131.15, and with EPA guidance. EPA approves this revision

Appendix I: Organoleptic Effect Criteria

The Pueblo of Laguna adopted criteria to protect for organoleptic effects for the following pollutants:

Acenapthene
Monochlorobenzene
3-Chlorophenol
4-Chlorophenol
2,3 Dichlorophenol
2,5 Dichlorophenol
2,6 Dichlorophenol
3,4 Dichlorophenol
2,4,5 Trichlorophenol
2,4,6 Trichlorophenol
2,3,4,6-Tetrachlorophenol
2-Methyl-4-Chlorophenol
3-Methyl-4-Chlorophenol
3-Methyl-6-Chlorophenol
2-Chlorophenol
Copper
2,4-Dichlorophenol
2,4-Dimethylphenol
Hexachlorocyclopentadiene
Nitrobenzene
Pentachlorophenol
Phenol
Zinc

EPA review: The criteria for organoleptic effects are consistent with EPA's CWA section 304(a) criteria recommendations and are protective of the drinking water use established by the Pueblo of Laguna. EPA approves the criteria in Appendix I.

Appendix II. Aquatic Life Criteria Table

The Pueblo of Laguna adopted numeric criteria for the following substances to protect aquatic life:

Acrolein
Aldrin
Alkalinity
Aluminum
alpha-Endosulfan
Arsenic
beta-Endosulfan
Carbaryl
Cadmium
Chordane
Chloride
Chlorine
Chlopyrifos
Chorine residual
Chromium (III)
Chromium (VI)
Copper
Cyanide
Demeton
Diazinon
Dieldrin
Endrin
gamma-BHC (Lindane)
Guthion
Heptachlor
Heptachlor epoxide
Iron
Lead
Malathion
Mercury
Methoxychlor
Mirex
Nickel
Nonylphenol
Nutrients
Parathion
Pentachlorophenol
pH
Polychlorinated biphenyls
Selenium
Silver
Sulfide-hydrogen sulfide
Toxaphene
Tributyltin
Zinc
4,4' DDT

The Pueblo of Laguna also adopted narrative criteria, based on EPA's Gold Book for aesthetic qualities, boron, color, total dissolved gases, and hardness.[7] Appendix II includes several footnotes which clarify the derivation or implementation of specific criteria, along with conversion factors for the hardness-based dissolved metals criteria. Appendix II also includes the option to use the Biotic Ligand Model as the copper criteria. The Pueblo of Laguna adopted nutrient criteria by reference to EPA's ecoregion based criteria documents.[8] These criteria documents will be used to interpret numeric values for total phosphorus, total nitrogen, turbidity (streams and rivers) and Secchi depth (lakes).

> **EPA review:** The aquatic life criteria in Appendix II are consistent with EPA's current criteria published under CWA section 304(a), at the time of adoption of the *Pueblo of Laguna Water Quality Standards*. EPA approves the criteria in Appendix II, as protective of the aquatic life and fishery uses in the Pueblo of Laguna's waters.

Appendix III. Ammonia Criteria

The Pueblo of Laguna adopted ammonia criteria to protect fishery uses. The acute criterion includes protection for coldwater and warmwater fisheries. The chronic criterion includes values to protect early life stages of fish, as well as values that are protective when early life stages are absent.

> **EPA review**: The adopted criteria reflect EPA's recommendations published in 1999 under section 304(a). The acute criterion for ammonia (Table C) is dependent on pH and whether salmonids are present or absent. The chronic criterion (Tables A and B) is dependent on pH and temperature. At lower temperatures, the chronic criterion is also dependent on the presence or absence of early life stages of fish. The temperature dependency results in a gradual increase in the criterion as temperature decreases, and a criterion that is more stringent, at temperatures below 15 °C, when early life stages of fish are expected to be present.
>
> In August 2013, EPA published updated criteria recommendations based on additional toxicity data, including tests on sensitive mussel species. Where freshwater mussels are present, both the acute and chronic criteria in EPA's 2013 are generally more stringent than the 1999 criteria. Where mussels are not present, the 2013 acute and chronic draft criteria are comparable to the current criteria. The Pueblo of Laguna's development of WQS, including preparation for public participation, was underway when EPA's updated criteria document was released. Mussel species are not expected to be found in the Pueblo of Laguna's waters. The U.S. Fish and Wildlife Service has noted that the Texas hornshell, found in a tributary of the Pecos River, is the only remaining native mussel in New Mexico. Based on this information, EPA approves the ammonia criteria in Appendix III, as protective of the aquatic life and fishery uses in the Pueblo of Laguna's waters.

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[7] USEPA. 1987. *Quality Criteria for Water 1986*. Office of Water, U.S. Environmental Protection Agency. Washington, D.C. EPA 440/5-86-001. 477 pages. Available at: http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_goldbook.pdf

[8] USEPA. 2000 and 2001. Office of Water, U.S. Environmental Protection Agency. Washington D.C. Available at: https://www.epa.gov/nutrient-policy-data/ecoregional-criteria . (See documents for lakes and reservoirs and for rivers and streams, for Ecoregion II – Western Forested Mountains and Ecoregion III – Xeric West.)

Appendix V. Tables: Standards for Various Designated Uses

In Table 1, the Pueblo of Laguna adopted criteria for the following substances to protect human health:

Acenaphthene
Acrolein
Acrylonitrile
Aldrin
alpha-BHC (hexachlorocyclohexane-alpha)
alpha-Endosulfan,
Anthracene
Antimony
Arsenic
Asbestos
Barium
Benzene
Benzidine
Benzo(a)Anthracene
Benzo(a)Pyrene
Benzo(b)Fluoranthene
Benzo(k)Fluoranthene
Beryllium
beta-BHC (hexachlorocyclohexane-beta)
beta Endosulfan
Bis (2-Chloroethyl) Ether
Bis (2-Chloroisopropyl) Ether
Bis-2-Ethylhexylphthalate
Bromoform
Butyl Benzyl Phthalate
Cadmium
Carbon Tetrachloride
Chlordane
Chlorobenzene
Chlorodibromomethane
Chloroform
Chlorophenoxy Herbicide (2,4 D)
Chromium (III)
Chromium (VI)
Chrysene
Copper
Cyanide
Dibenzo(a,h)-Anthracene
Dichlorobromomethane
Dieldrin
Diethyl phthalate
Dimethyl phthalate
Di-n-Butylphthalate
Dinitrophenols
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Ether, Bis (Chloromethyl)
Ethylbenzene
Fluoranthene
Fluorene
gamma-BHC (Lindane)
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclo-hexane-technical
Hexachlorocyclopentadiene
Hexachloroethane
Indeno (1,2,3-cd) Pyrene
Isophorone
Manganese
Methylmercury [fish tissue]
Methoxychlor
Methyl Bromide
Methylene Chloride
Nickel
Nitrates
Nitrobenzene
Nitrosamines
Nitrosodibutylamine, N
Nitrosodiethylamine, N
Nitrosopyrrolidine, N
N-Nitrosodimethylamine
N-Nitrosodi-n-Proplyamine
N- Nitrosodiphenylamine
Pentachlorobenzene
Pentachlorophenol
pH
Phenol
Polychlorinated Biphenyls
Pyrene
Selenium
Solids, Dissolved and Salinity
Tetrachlorobenzene 1,2,4,5
Tetrachloroethylene
Thallium
Toluene
Toxaphene
Trichloroethylene
Trichlorophenol, 2,4,5
Vinyl Chloride
Zinc
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethylene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,2 Diphenylhydrazine
1,2-Trans-Dichloroethylene
1,3-Dichlorobenzene
1,3-Dichloropropene
1,4-Dichlorobenzene
2,3,7,8-TCDD (dioxin)
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethyl phenol
2,4 Dinitrophenol
2,4 Dinitrotoluene
2-Chloronapthalene
2-Chlorophenol
2-Methyl-4,6-Dinitrophenol
3,3-Dichlorobenzidine
4,4' DDT
4,4' DDE
4,4' DDD

Table 1 includes several footnotes which clarify the derivation or implementation of specific criteria. Footnote C specifies that the maximum contaminant level (MCL) in Appendix IV is used to implement the human health criteria in Appendix V for the following substances: beryllium, cadmium, chlorobenzene, chlorophenoxy herbicide (2,4-D), chromium (III), chromium (VI), methoxychlor, selenium, toluene, 1,1,1-trichloroethane, 1,2-trans-dichloroethylene.

EPA review: The human health criteria in Table 1 are consistent with EPA's CWA section 304(a) criteria recommendations, at the time of adoption of the standards. The criteria for consumption of water and fish and for consumption of fish only are based on the following parameters:

- risk for carcinogens: 10^{-6} (1 per 1,000,000)
- body weight: 70 kg
- water consumption rate: 2 liters/day
- fish consumption rate: 0.0175 grams/day
- cancer potency factors (q1*) and reference doses (RfD): values in EPA's IRIS database or from EPA's criteria recommendations
- bioconcentration factors: values used in EPA's criteria calculations

The criteria range for pH is based on the recommended criteria for recreational activities in EPA's Blue Book. The criteria in Table 1 are protective of the Drinking Water use, the Primary Human Contact/Ceremonial use and the Outstanding Tribal Resource Waters use designated by the Pueblo of Laguna and of the designated uses established by downstream entities. EPA approves the human health criteria and the associated footnotes in Table 1.

In Table 2, the Pueblo of Laguna adopted numeric criteria for the following parameters to protect the Domestic Water Supply use and the Groundwater Recharge use:

Aluminum	Copper	Nitrate (measured as Nitrogen)
Antimony	Cyanide	pH
Arsenic	Fluoride	Radium-226 & 228
Barium	Iron	Selenium
Beryllium	Lead	Sulfate
Bromate	Manganese	TDS
Cadmium	Mercury, total	Thallium
Chloride	Molybdenum	Uranium
Chromium	Nickel	

EPA review: The numeric criteria identified above, and under the column titled "EPA Safe Drinking Water Standards (mg/L)," are based on primary MCLs, secondary MCLs and drinking water effect levels (DWELs) published under the SDWA. These criteria are protective of the Domestic Water Supply use and the Groundwater Recharge use and are approved by EPA. Please see Part II of this enclosure regarding EPA's action on the criteria in Table 2 for groundwater and aquifers.

II. PROVISIONS IN THE 2014 WQS FOR WHICH EPA IS TAKING NO ACTION UNDER CWA SECTION 303(C)

Subchapter I. General Provisions

Section 11-2-3. Definitions

EPA takes no action on the definitions for "Groundwater" and "Pueblo Waters," as they are applied to waters beyond the scope covered under the CWA.

Section 11-2-5. Revisions to Laguna Water Quality Standards

EPA takes no action on the provisions in Part B. Public Comment and Hearing and Part C. Judicial Review. These provisions are not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Section 11-2-7. Water Rights

EPA takes no action on the provision in Section 11-2-7, as this is implementation provision under Tribal authority.

Section 11-2-9. Dispute Resolution Mechanism

EPA takes no action on the provision in Section 11-2-9, as the Dispute Resolution Mechanism is not (1) legally binding provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Subchapter IV. Designated Uses and Associated Numeric Water Quality Standards

Section 11-2-41. List of Designated Uses and Associated Standards

Under Part F. Wildlife Habitat use, EPA also takes no action on the numeric criteria for DDT and PCBs. These criteria are based on EPA's recommendations to protect aquatic life. However, these criteria were not derived to protect wildlife, which are at higher trophic levels on the food chain and may accumulate increased amounts of these compounds. EPA is unable to approve the criteria for DDT and PCBs, as the agency did not have information to document how these values would be protective of wildlife.

Section 11-2-43. Designated Use Table

EPA takes no action on the table on page 28 which includes designated uses for the Pueblo of Laguna's groundwater resources. EPA does not have the authority under CWA section 303(c) to approve or disapprove groundwater provisions that are unrelated to surface water.

Subchapter V. Sampling and Analysis, Variances, and Exceedances

Section 11-2-51. Sampling and Analysis

EPA does not consider Section 11-2-51, which identifies documents that will be used as guidance by the Pueblo of Laguna to assess the attainment of water quality standards, to be water quality standards under CWA section 303(c). EPA takes no action on these provisions because they are not (1) legally binding

provisions adopted or established pursuant to Tribal law that (2) address designated uses, criteria, or antidegradation, and (3) describe the desired condition or level of protection of the water body.

Appendix IV. EPA MCLs for Drinking Water

The Pueblo of Laguna adopted the SDWA maximum contaminant levels (MCLs) for microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals and radionuclides. Appendix IV also includes information on potential health effects and the maximum contaminant level goal (MCLG) for each contaminant. EPA takes no action on Appendix IV as this information was included in the *Pueblo of Laguna Water Quality Standards* for reference.

Appendix V. Tables: Standards for Various Designated Uses

In Table 2, the Pueblo of Laguna adopted criteria for the following parameters to protect groundwater resources

Aluminum
Antimony
Arsenic
Barium
Bicarbonate
Beryllium
Boron
Bromate
Bromide
Cadmium
Calcium
Chloride
Chromium
Copper
Cyanide
Fluoride
Gross alpha particles (includes Radium 226 but not Radon or Uranium)
Iron
Lead
Magnesium
Manganese
Mercury, total
Molybdenum
Nickel
Nitrate (measured as Nitrogen)
pH
Potassium
Radium-226 & 228
Selenium
Silica
Sodium
Sodium + potassium
Strontium
Sulfate
TDS
Temperature
Thallium
Tritium
Uranium
Vanadium
Fecal Coliform and E. coli

Criteria for the aquifers and the groundwater formations are based on SDWA values or on data for specific aquifers. EPA is not taking action on the standards for aquifers and groundwater formations. EPA does not have the authority under CWA section 303(c) to approve or disapprove groundwater provisions that are unrelated to surface water. Please see Part I of this enclosure for EPA's approval of the numeric criteria in the column in Table 2 titled "EPA Safe Drinking Water Standards (mg/L)."

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

MAY - 1 2018

Honorable Phillip A. Perez
Governor
Pueblo of Nambe
15A NP 102 West
Santa Fe, NM 87506

Dear Governor Perez:

The Environmental Protection Agency (EPA) has completed its review of the new and revised provisions in the *Pueblo of Nambe Water Quality Code*. These water quality standards were adopted by the Pueblo of Nambe in November 2016 and submitted to EPA for approval in December 2017.

I am pleased to inform you that EPA is approving the new and revised provisions in the water quality standards, as documented in Part I of the enclosure to this letter, pursuant to section 303(c) of the Clean Water Act and the implementing regulation at 40 CFR part 131. These provisions include:

- a decision flow chart for analyses conducted under the Antidegradation Policy.
- new or revised aquatic life criteria for 33 compounds
- new human health criteria for 113 pollutants, and
- additional revisions, including non-substantive or editorial changes, which facilitate implementation of the water quality standards.

Section 7(a)(2) of the Endangered Species Act requires that all federal agencies engage in consultation to ensure their actions are not likely to jeopardize the continued existence of any threatened or endangered species or result in adverse modification of designated critical habitat. EPA has determined that approval of new and revised provisions in the *Pueblo of Nambe Water Quality Code* will have no effect on federally-listed threatened and endangered species or on critical habitat.

EPA has also reviewed its previous action on the 2004 triennial revision of the *Pueblo of Nambe Water Quality Code*, in which it approved several provisions subject to our completion of consultation under the Endangered Species Act. Based on the evaluation conducted for the 2017 triennial revision, EPA concludes that there is no effect on federally-listed species or on critical habitat, as a result of its previous approval of those revisions. These provisions are identified in Part II of the enclosure. Part III of the enclosure summarizes revisions which do not require EPA action under Clean Water Act section 303(c).

I would like to commend the Pueblo of Nambe for its commitment and hard work in completing this task of reviewing and revising the water quality standards. We look forward to continuing to

work with you and your staff on implementation of the Pueblo of Nambe's water quality program. If you have any questions or concerns, please contact me at (214) 665-7101 or have your staff contact Diane Evans at (214) 665-6677.

Sincerely,

David F. Garcia, P.E.
Acting Director
Water Division

Enclosure

cc: Steve Rydeen, Pueblo of Nambe –
Department of Environment and Natural Resources

Tara Weston, Pueblo of Nambe
Department of Environment and Natural Resources

EPA'S REVIEW OF *PUEBLO OF NAMBE WATER QUALITY CODE*
(April 2018)

The Environmental Protection Agency's (EPA's) action addresses the revisions to the *Pueblo of Nambe Water Quality Code* adopted in November 2017. The revised water quality standards (WQS) were submitted to EPA in December 2017. This enclosure provides a summary of the revisions and the action taken by EPA including: Part I. Revisions in the 2017 *Pueblo of Nambe Water Quality Code* that are approved for purposes of Clean Water Act (CWA) section 303(c); Part II. Revisions that were previously approved for purposes of CWA section 303(c); and, Part III. Revisions in the 2017 *Pueblo of Nambe Water Quality Code* for which EPA is taking no action under CWA section 303(c).

I. Revisions in the 2017 *Pueblo of Nambe Water Quality Code* that are approved for purposes of CWA section 303(c)

Section I. Introduction, Authority, and Applicability

Part G. Compliance Schedules. The Pueblo of Nambe removed the stipulation that a compliance schedule in a National Pollutant Discharge Elimination System permit be limited to no more than three years to complete treatment modifications to meet permit requirements. The revised provision specifies that compliance with permit requirements be met at the earliest practicable time.

> EPA review: The revision from a three-year limitation for compliance schedules to the earliest practicable time is consistent with federal permitting regulation (40 CFR 122.47(a)(1)) and EPA guidance. EPA approves this revision.

Part K. Implementation of Numeric Criteria. The Pueblo of Nambe added Part K which includes the harmonic mean flow for implementation of human health criteria, with a modified formula for calculation of critical flow in ephemeral waters. Part K also includes language, which was previously included under Part C. General Standards, for implementation of other numeric criteria though a 4Q3 critical design flow.

> EPA review: EPA approves the new provision in Part K and the editorial change in Part C. These revisions are consistent with the CWA, the federal regulation at 40 CFR part 131, and current EPA guidance.[1] EPA's derivation of criteria published under CWA section 304(a) includes components for magnitude, duration and frequency. Implementation of numeric criteria through a critical low flow value, limits the duration and frequency of allowable excursions of criteria.

Section II. Antidegradation Policy and Implementation Plan

Part A Antidegradation Policy. The Pueblo of Nambe adopted Figure 1 which includes a flow chart of the review process under the antidegradation policy. This process will be used to evaluate whether a proposed activity or action that may lower water quality, can be authorized. A reference to Figure 1 was added under Part A.

> EPA review: The new and revised provisions in Section II are consistent with the intent of the CWA and the implementing regulation. The Pueblo of Nambe's process for conducting antidegradation reviews includes consideration of other practicable alternatives where for actions proposed in high quality waters, consistent with the regulation at 40 CFR 131.12(a)(2)(ii). EPA approves Figure 1. Antidegradation flow chart, along with the reference under Part A.

[1] USEPA. 1994. *Water Quality Standards Handbook: Second Edition.* Office of Water. Washington D.C. See Chapter 5 (updated in 2014) at: http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm

Section III. General Standards

Part O. Toxic Substances. The Pueblo of Nambe updated the references to EPA's methods for evaluating acute and chronic toxicity to the agency's current versions. The Pueblo of Nambe adopted language which assigns human health criteria (consumption of organisms only) to all waters with a designated, existing, or attainable fishery use, and to tributaries of these waters. Human health criteria for consumption of water and organisms are applicable to all waters with a designated, existing, or attainable Industrial and Municipal Water Supply use, and to tributaries of these waters. The Pueblo of Nambe also adopted a narrative provision for modification of existing human health criteria and derivation of criteria for additional substances.

> EPA review: EPA approves the updated references which may be used to implement the narrative criterion for toxic substances. EPA also approves the provisions for application of the human health criteria in Appendix B, calculation of human health criteria for additional substances, and modification of existing criteria. The provision for modification of existing health criteria or derivation of criteria for additional substances, is consistent with the level of protection established in Appendix B of the *Pueblo of Nambe Water Quality Code*.

Section IV. Water Body Uses and Specific Standards

Part A Stream Use Designation. The Pueblo of Nambe adopted the warmwater fishery use and the recharge of domestic water supply use for intermittent and ephemeral streams under item A.3. The Pueblo of Nambe added Table 1, which summarizes the designated uses for named water bodies, as established in Part A.

> EPA review: EPA approves the revisions in item A.3, and Table 1, in the *Pueblo of Nambe Water Quality Code*. The adoption of the warmwater fishery use and the recharge of domestic water supply use for intermittent and ephemeral waters is consistent with the goals established in CWA section 101(a)(2) and the implementing regulation at 40 CFR part 131.

Parts B.1 High Quality Coldwater Fishery Use, B.2. Marginal Coldwater Fishery Use and B.3. Warmwater Fishery Use. The Pueblo of Nambe reformatted the acute and chronic criteria for fisheries in the 2004 standards as Table 2. Freshwater Aquatic Life Criteria. The Pueblo of Nambe also added language under each fishery use to reference the updated table of aquatic life criteria and the human health criteria in Appendix B. Under the warmwater fishery use, the Pueblo of Nambe revised the lower end of the pH criterion from 6.0 to 6.5. Additional editorial revisions were made for consistency under each use.

The Pueblo of Nambe updated the aquatic life criteria for cadmium, mercury (acute criterion only), selenium and silver. The Pueblo of Nambe adopted additional criteria for the following substances:

Acrolein
Aldrin
Alkalinity
alpha-Endosulfan
beta-Endosulfan
Carbaryl
Chloride
Chlorpyrifos
Chromium (VI)
Demeton
Diazinon
Dieldrin
Endrin
gamma-BHC (Lindane)
Guthion
Heptachlor
Heptachlor Epoxide
Iron
Malathion
Methoxychlor
Mirex
Nonylphenol
Parathion
Pentachlorophenol
Sulfide-Hydrogen Sulfide
Toxaphene
Tributyltin
Total DDT and metabolites
Total PCBs

The Pueblo of Nambe reformatted the equations for metals criteria to include the conversion to a dissolved metal, as a separate calculation using the parameters in Tables 2a and 2b. The Pueblo of Nambe also removed a footnote which previously applied the acute and chronic equations for chromium to both trivalent and hexavalent chromium (equation retained for chromium III). Table 3 includes the criterion for selenium with elements for fish tissue (egg-ovary, whole body and muscle) and the water column. Table 2, Table 2b and Table 3 include several footnotes which clarify the derivation or implementation of aquatic life criteria.

> EPA review: The aquatic life criteria in Table 2, Table 2a, Table 2b and Table 3, the associated footnotes for the tables and the pH criterion under the Warmwater Fishery Use are consistent with EPA's current criteria published under CWA section 304(a). EPA approves the criteria in Part B1, Part B.2 and Part B.3, as protective of the fishery uses in the Pueblo of Nambe's waters.

Part B.5 Irrigation Use. The Pueblo of Nambe removed the criterion for fecal coliform bacteria previously associated with the Irrigation use.

> EPA review: The fecal coliform criterion for the Irrigation use was based on recommendations published in EPA's Blue Book.[2] A more protective criterion for pathogens under the primary contact use is applicable to all Pueblo of Nambe surface waters, and thus protective of the irrigation use. In addition, the Pueblo of Nambe and most other states and Indian tribes no longer utilize fecal coliform criteria for assessment of surface water quality. EPA approves this revision.

Part B.6. Recharge of Domestic Water Supply. The Pueblo of Nambe revised the criterion for dissolved lead from 0.05 mg/L to 0.015 mg/L.

> EPA review: The revised criterion for lead is based on the action level established under regulations for implantation of the Safe Drinking Water Act. EPA approves the lead criterion as protective of the Pueblo of Nambe's recharge of domestic water supply use.

Part B7. Primary Contact. The Pueblo of Nambe revised the criteria for *Escherichia coli (E. Coli)* and also adopted criteria for enterococci. Criteria for both indicators include a geometric mean value and a statistical threshold value (STV). The Pueblo of Nambe added language to apply the human health criteria in Appendix B to the primary contact use. The Pueblo of Nambe also removed the fecal coliform criteria from the primary contact use.

> EPA review: The Pueblo of Nambe's revised criteria, with components for magnitude, duration and frequency, are consistent with recommendations published in EPA's 2012 recreational criteria document.[3] The duration component of 90 days is consistent with EPA recommendations on the 2012 criteria document. The criteria for the primary contact use are based on a risk level of 36 illnesses per 1000 recreators. The removal of the fecal coliform criteria is consistent with EPA guidance for protection of recreational uses, which no longer includes this indicator. EPA approves the new and revised provisions under the primary contact use.

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[2] National Academy of Sciences, National Academy of Engineering. 1973. *Water Quality Criteria 1972.* EPA-R3-73-003. U.S. Government Printing. Office. Washington, D.C.

[3] USEPA. 2012. *Recreational Water Quality Criteria.* Office of Water. EPA-820-F-12-058. Washington, D.C. 69 pages.

Part B.8. Industrial and Municipal Water Supply Use. The Pueblo of Nambe adopted numeric criteria for the following parameters to protect the industrial and municipal water supply use:

Dissolved antimony	Dissolved lead	Dissolved silver
Dissolved arsenic	Dissolved manganese	Sulfate
Dissolved barium	Dissolved mercury	Dissolved thallium
Dissolved cadmium	Dissolved nickel	Total trihalomethane
Chloride	Nitrate (as N)	Tritium
Dissolved chromium	Fluoride	Uranium
Cyanide	Radium 226 + 228	Total Dissolved Solids
Gross alpha	Dissolved selenium	pH
Dissolved iron		

Human health criteria for the consumption of water and organisms in Appendix B are also applicable to the industrial and municipal water supply use.

> EPA review: The numeric criteria identified above are based on primary maximum contaminant levels (MCLs), secondary MCLs, action levels and drinking water effect levels published under the Safe Drinking Water Act. The criterion range for pH is consistent with recommendations published in EPA's Blue Book. EPA approves these criteria, as protective of the industrial and municipal water supply use.

Section V. Sampling and Analyses

Part B. Bacteriological Surveys. The Pueblo of Nambe revised language under Part B to incorporate a duration of 90 days for the *E. coli* and enterococci criteria under the primary contact use. The Pueblo of Nambe also established an allowable excursion rate for the STV of 10% of samples collected within a 90-day period.

> EPA review: EPA approves the revisions in Part B, which are consistent with agency guidance.

Section VI. Definitions

The Pueblo of Nambe revised the following definitions: Acute Toxicity, Attainable use, Chronic Toxicity and Warmwater fishery. The Pueblo of Nambe added definitions for the following terms:

Aquatic Life	Irrigation
Biomonitoring	Livestock watering & wildlife habitat
CAS number	Practicable
CMC (Criteria Maximum Concentration)	Recharge of domestic water supply
CCC (Continuous Criteria Concentration)	Relative Source Contribution (RSC)
E. coli	Wetlands
High Quality Coldwater fishery	

> EPA review: Sources of the definitions include federal statutes, EPA regulations and guidance, and other technical references. The revised definitions for Acute Toxicity and Chronic Toxicity include the updated technical references noted under Section III. Part O. The revised definition for Attainable use is consistent with the federal regulation at 40 CFR 131.10(d). The definition for Warmwater fishery was modified to include protection of invertebrates, consistent with the intent of this use.

The definition of *E. coli* is consistent with technical references and provides clarification for implementation of the criteria to support the Primary Contact use. The definition of Practicable is consistent with the regulation at 40 CFR 131.3(n). The definition of Relative Source Contribution is consistent with EPA's methodology for deriving human health criteria.[4] The definitions for High Quality Coldwater Fishery, Irrigation, Livestock watering & wildlife habitat, and Recharge of domestic water supply provide descriptions of the designated uses in the *Pueblo of Nambe Water Quality Code*. The definitions for CMC and CCC are consistent with EPA's guidance for development of aquatic life criteria. The definitions for Aquatic Life, Biomonitoring, CAS number and Wetlands are consistent with general references.

EPA's review found that new and revised definitions support the implementation of the *Pueblo of Nambe Water Quality Code* and are consistent with the goals of CWA section 101(a)(2) and section 303(c), the federal regulation at 40 CFR part 131, and EPA guidance. EPA approves the new and revised provisions in Section VI.

Appendix A – Ammonia Standards for Fisheries Protection

The Pueblo of Nambe revised the ammonia criteria in Appendix A based on EPA's updated recommendations published under CWA section 304(a) for the protection of aquatic life.[5]

EPA review: The acute criteria are protective of waters where species with similar sensitivities as the genus *Oncorhynchus* may be present. The acute and chronic criteria include components for both duration and frequency. EPA approves the ammonia criteria in Appendix A, which are consistent with the agency's criteria recommendations published under CWA section 304(a).

Appendix B - Human Health Criteria

The Pueblo of Nambe adopted criteria for the following substances to protect human health:

1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethylene
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,2-Diphenylhydrazine
1,2-Trans-Dichloroethylene
1,3-Dichlorobenzene
1,3-Dichloropropene
1,4-Dichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methyl-4,6-Dinitrophenol
3,3'-Dichloro-benzidine
3-Methyl-4-Chlorophenol
4,4'-DDD
4,4'-DDE
4,4'-DDT
Acenaphthene
Acrolein
Acrylonitrile
Aldrin
alpha-BHC
alpha-Endosulfan
Anthracene
Antimony
Asbestos
Barium
Benzene
Benzidine
Benzo(a) Anthracene
Benzo(a) Pyrene
Benzo(b) Fluoranthene
Benzo(k) Fluoranthene
beta-BHC (beta-HCH)
beta-Endosulfan
Bis(2-Chloro-1-Methylethyl) Ether
Bis(2-Chloroethyl) Ether
Bis(2-Ethylhexyl) Phthalate
Bis(Chlorormethyl) Ether

[4] USEPA. 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)*. Office of Water. Washington, DC. Available at: http://water.epa.gov/scitech/swguidance/standards/upload/2005_05_06_criteria_humanhealth_method_complete.pdf

[5] USEPA. 2013. *Aquatic life ambient water quality criteria for ammonia - freshwater 2013*. EPA-822-R-13-001. National Technical Information Service. Springfield, VA. Available at: https://www.epa.gov/wqc/aquatic-life-criteria-ammonia

Bromoform
Butylbenzyl Phthalate
Carbon Tetrachloride
Chlordane
Chlorobenzene
Chlorodibromomethane
Chloroform
Chlorophenoxy Herbicide (2,4,5-TP) [Silvex]
Chlorophenoxy Herbicide (2,4-D)
Chrysene
Copper
Cyanide
Dibenzo(a,h) Anthracene
Dichlorobromomethane
Dieldrin
Diethyl Phthalate
Dimethyl Phthalate
Di-n-Butyl Phthalate
Dinitrophenols
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Ethylbenzene
Fluoranthene
Fluorene
Gamma-BHC (HCH); Lindane
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclohexane (HCH) - Technical
Hexachlorocyclo-pentadiene
Hexachloroethane
Indeno(1,2,3-cd) Pyrene
Isophorone
Manganese
Methoxychlor
Methyl Bromide
Methylene Chloride
Methylmercury
Nickel
Nitrates
Nitrobenzene
Nitrosamines
Nitrosodibutylamine
Nitrosodiethylamine
Nitrosopyrrolidine
N-Nitrosodimethylamine
N-Nitrosodi-n-Propylamine
N-Nitrosodiphenylamine
Pentachlorobenzene
Pentachlorophenol (PCP)
Phenol
Polychlorinated Biphenyls (PCBs)
Pyrene
Selenium
Solids Dissolved and Salinity
Tetrachloroethylene
Toluene
Toxaphene
Trichloroethylene
Vinyl Chloride
Zinc

EPA review: The criteria for consumption of water and fish and for consumption of fish only are based on the following parameters:

- risk for carcinogens: 10^{-6} (1 per 1,000,000)
- body weight: 80 kg
- water consumption rate: 2.4 liters/day
- fish consumption rate: 0.022 kilograms/day
- cancer potency factors (q1*) and reference doses (RfD): values in EPA's IRIS database or from EPA's criteria recommendations
- bioaccumulation factors: values used in EPA's criteria calculations
- relative source contributions: values used in EPA's criteria calculations

EPA approves the human health criteria and the associated footnotes in Appendix B, which were derived from EPA's Human Health Criteria Calculator.[6] The human health criteria in Table B are consistent with EPA's CWA section 304(a) criteria recommendations.

Additional Revisions in the *Pueblo of Nambe Water Quality Code*

Several revisions are non-substantive in nature and thus do not substantively modify the *Pueblo of Nambe Water Quality Code.* These include the addition of a Table of Contents and revisions in Section I. Parts B, E, H, and I; Section II. Part B; Section IV; Section V; and, Section VI. The Pueblo of Nambe added language under the designated uses in Section IV to highlight specific uses for individual water bodies. Other wording or punctuation changes were made in the *Pueblo of Nambe Water Quality Code* which were grammatical changes or changes in phrasing that do not alter the meaning or implementation of the standards.

[6] USEPA. 2018. Water Quality Standards Tools for Tribes. Current version available at: https://www.epa.gov/wqs-tech/water-quality-standards-tools-tribes (updated January 11, 2018).

EPA review: EPA considers such non-substantive edits to existing WQS to constitute new or revised WQS that EPA has the authority and duty to approve or disapprove under CWA section 303(c)(3). While such revisions do not substantively change the meaning or intent of the existing WQS, EPA believes that it is reasonable to treat such non-substantive changes in this manner to ensure public transparency on what provisions are effective for purposes of the CWA. EPA notes that the scope of its action in reviewing and approving or disapproving such non-substantive changes would extend only as far as the actual non-substantive changes themselves. In other words, EPA's action on non-substantive changes to previously approved WQS would not constitute an action on the underlying previously approved WQS. Any challenge to EPA's prior approval of the underlying WQS would be subject to any applicable statute of limitations and prior judicial decisions. EPA approves the listed non-substantive changes in the *Pueblo of Nambe Water Quality Code*, pursuant to CWA section 303(c).

II. Revisions in the 2004 *Pueblo of Nambe Water Quality Code*, previously approved for purposes of CWA section 303(c)

EPA previously approved the items in Part II of this enclosure, subject to completion of consultation under section 7(a)(2) of the Endangered Species Act. Based on the evaluation conducted for the 2017 triennial revision, EPA concludes that there is no effect on federally-listed species or on critical habitat, as a result of the previous approval of the following revisions in the 2004 *Pueblo of Nambe Water Quality Code*.

Section III. General Standards

Part B, Floating Solids, Oil, and Grease. The Pueblo of Nambe was added language to the narrative standard to prohibit floating solids, oil, or grease in amounts or concentrations which could cause negative effects on growth, function, and reproduction of wildlife, plant or aquatic life.

Part H, Mixing Zones. The Pueblo of Nambe modified the provision for mixing zones to allow the use of a fraction (one-third) of the critical stream flow to determine the size of a mixing zone.

Part P, Narrative Biocriteria. The Pueblo of Nambe adopted a narrative provision which expresses the intent to maintain biological communities in water resources in the most natural condition.

Section IV - Water Body Uses and Specific Standards

Acute and Chronic Fishery Criteria. The Pueblo of Nambe revised aquatic life criteria for the following substances based on EPA's recommendations published under CWA section 304(a): arsenic, cadmium, chromium (III and IV), copper, lead, nickel, silver and zinc. (The aquatic life criteria for ammonia, cadmium, chromium and silver in the 2004 revision, are superseded by revised criteria in the 2017 *Pueblo of Nambe Water Quality Code*.)

Part D. Livestock Watering & Wildlife Habitat Use. The Pueblo of Nambe revised the arsenic criterion and adopted criteria for cyanide and total residual chlorine.

Appendix 1. Ammonia Tables

The Pueblo of Nambe updated the ammonia criteria to the recommendations found in EPA's *1999 Ammonia Criteria Update*. (The aquatic life criteria for ammonia in the 2004 revision, are superseded by revised criteria in the 2017 *Pueblo of Nambe Water Quality Code*.)

III. Revisions in the 2017 *Pueblo of Nambe Water Quality Code* for which EPA is taking no action under CWA section 303(c)

Two revisions in the 2017 *Pueblo of Nambe Water Quality Code* were made to reflect standards effective under the CWA. These revisions address portions of the 2004 *Pueblo of Nambe Water Quality Code*, which were not previously by EPA for purposes of the CWA.

Section B.4. Livestock Watering and Wildlife Habitat Use. The Pueblo of Nambe removed the numeric criteria for total DDT and metabolites and total PCBs. Please see pages 2 and 3 of this enclosure, for EPA's approval action of criteria under the fishery uses for these substances.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

MAR - 8 2019

The Honorable Richard Aspenwind
Governor
Taos Pueblo
P.O. Box 1846
Taos, New Mexico 87571

Dear Governor Aspenwind:

The Environmental Protection Agency (EPA) has completed its review of the new and revised provisions in the *Taos Pueblo Water Quality Standards*. These water quality standards were adopted by Taos Pueblo in December 2018 and submitted to EPA for approval in January 2019.

I am pleased to inform you that EPA is approving the new and revised provisions in the water quality standards, as documented in Part I of the enclosure to this letter, pursuant to section 303(c) of the Clean Water Act and the implementing regulation at 40 CFR part 131. These provisions include:

- Addition of Hail Creek, with designated uses (Section IV. C);
- Adoption of criteria to protect aquatic life in intermittent and ephemeral streams (Section IV. C);
- New methylmercury criteria to protect human health based on consumption of fish (Appendix D); and,
- New aquatic life criteria for acrolein, diazinon, nonylphenol and tributyltin, and updated aquatic life criteria for cadmium, silver and total ammonia (Appendix F).

Part II of the enclosure identifies revisions in the 2018 water quality standards which do not require EPA action under Clean Water Act section 303(c).

Section 7(a)(2) of the Endangered Species Act requires that all federal agencies engage in consultation to ensure their actions are not likely to jeopardize the continued existence of any threatened or endangered species or result in adverse modification of designated critical habitat. EPA has determined that approval of new and revised provisions in the 2018 *Taos Pueblo Water Quality Standards* will have no effect on federally-listed threatened and endangered species or on critical habitat. EPA has also reviewed its previous action on the 2002 *Pueblo of Taos Water Quality Standards*, in which it approved several provisions subject to completion of consultation under the Endangered Species Act. Based on the evaluation conducted for the 2018 revision of the standards, EPA concludes that there is no effect on federally-listed species or on critical habitat, as a result of its previous approval of specific items in Taos Pueblo's initial water quality standards. These provisions are identified in Part III of the enclosure.

I would like to commend Taos Pueblo for its commitment and hard work in completing this task of reviewing and revising the water quality standards. We look forward to continuing to work with you and your staff on implementation of Taos Pueblo's water quality program. If you have any questions or concerns, please contact me at (214) 665-7101 or have your staff contact Diane Evans at (214) 665-6677.

Sincerely,

Charles W. Maguire
Director
Water Division

Enclosure

ecc: Cherylin Atcitty
Taos Pueblo Environmental Office

EPA'S REVIEW OF *TAOS PUEBLO WATER QUALITY STANDARDS*
(March 2019)

The Environmental Protection Agency's (EPA's) action addresses the revisions to the *Taos Pueblo Water Quality Standards* adopted in December 2018 and submitted to EPA in January 2019. This enclosure provides a summary of the revisions and the action taken by EPA including: Part I. Provisions in the *Taos Pueblo Water Quality Standards* approved under Clean Water Act (CWA) section 303(c); Part II. Revisions in the 2018 *Taos Pueblo Water Quality Standards* for which EPA is taking no action under CWA section 303(c); and, Part III. Provisions that were previously approved for purposes of CWA section 303(c).

I. Provisions in the *Taos Pueblo Water Quality Standards* approved under CWA section 303(c)

Section III. Narrative Water Quality Standards

Part D. Determining Compliance with Narrative Standards. Taos Pueblo updated the references to EPA's methods for assessing acute and chronic toxicity for aquatic life to the most current versions.

> EPA review: EPA approves the updated references which implement the narrative criterion for toxic substances in the *Taos Pueblo Water Quality Standards*.

Section IV. Designated Uses

Part C. Designated Use Table. Taos Pueblo added Hail Creek with the following designated uses: drinking water, domestic water supply (including groundwater recharge), wildlife habitat, high quality coldwater fishery, irrigation, livestock and wildlife watering, aquatic life, and primary human contact/ceremonial use. Taos Pueblo also adopted the aquatic life use for intermittent and ephemeral streams.

> EPA review: The adoption of the aquatic life use for intermittent and ephemeral waters and the designated uses for Hail Creek, with applicable criteria for each designated use, are consistent with the goals established in CWA section 101(a)(2) and with the implementing regulation at 40 CFR part 131. EPA approves the new provisions in Part C of the *Taos Pueblo Water Quality Standards*.

Section V. Numeric Water Quality Standards

Part A. General Requirements. Taos Pueblo removed the 30Q5 design flow from Part A, which was previously used for implementation of human health criteria for non-carcinogenic substances. The harmonic mean flow was retained for implementation of human health criteria for both carcinogenic and non-carcinogenic substances.

> EPA review: EPA approves this revision which is consistent with EPA guidance[1] to implement the federal regulation at 40 CFR part 131.

[1] USEPA. 2014. *Water Quality Standards Handbook: Chapter 5: General Policies*. EPA 820-B-14-004. EPA Office of Water, Office of Science and Technology, Washington, DC. Accessed March 2019. See Chapter 5 at: http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm

Section VII. Definitions

Taos Pueblo revised the definitions for Attainable use and Harmonic mean flow.

> EPA review: The revised definition for Attainable use is consistent with the federal regulation at 40 CFR 131.10(d). The revised definition for harmonic mean flow is consistent with the revision in Section V. Part A of the *Taos Pueblo Water Quality Standards* and with EPA guidance. EPA approves the revised definitions in Section VII.

Appendix A. Drinking Water

Taos Pueblo removed the criterion for fecal coliform bacteria previously applicable under the drinking water use.

> EPA review: The fecal coliform bacteria criteria for the drinking water use was based on the implementing regulation of the Safe Drinking Water Act. Taos Pueblo, and most other states and Indian tribes, no longer utilize fecal coliform criteria for assessment of surface water quality. EPA approves this revision.

Appendix B. Domestic Water Supply (including Recharge)

Taos Pueblo revised the criteria for dissolved arsenic and lead under the domestic water supply (including recharge) use to be consistent with the previously-approved criteria under the drinking water use.

> EPA review: The revised criteria for arsenic and lead are based on the implementing regulation of the Safe Drinking Water Act. EPA approves the arsenic and lead criteria as protective of Taos Pueblo's domestic water supply and recharge uses.

Appendix D. Fisheries

Taos Pueblo adopted a turbidity criterion of 10 NTU under the cold water fishery use and a methylmercury criterion of 0.3 mg/L under the cold water fishery and high quality cold water fishery uses.

> EPA review: The turbidity criterion is based on recommendations published in the Federal Water Pollution Control Administration's Green Book to protect aquatic life [2] and is consistent with the previously-approved turbidity criterion under the high quality cold water fishery use. The methylmercury criterion is consistent with EPA's current recommendation published under CWA section 304(a) to protect human consumption of fish. EPA approves the turbidity criterion as protective of aquatic life and the methylmercury criteria as protective of human health.

[2] FWPCA (Federal Water Pollution Control Administration). 1968. Water Quality Criteria (the "Green Book"), Report of the National Technical Advisory Committee to the Secretary of the Interior. U.S. Department of the Interior. Washington, DC. (Out of Print.)

Appendix E. Agriculture & Wildlife Watering

Taos Pueblo removed the fecal coliform bacteria criteria previously applicable under the agriculture and wildlife watering uses.

> EPA review: The fecal coliform bacteria criteria for the agricultural and wildlife watering uses was based on recommendations published in EPA's Blue Book[3] to protect waters used for irrigation. However, a more protective criterion for pathogens under the primary human contact/ceremonial use is applicable to all surface waters within Taos Pueblo. Also, as noted above, Taos Pueblo no longer utilizes fecal coliform criteria for assessment of surface water quality. EPA approves this revision. EPA also approves the mercury criterion for the livestock watering use, which is based on EPA's recommendation established in the Blue Book.

Appendix F. Aquatic Life

Appendix F-1: Acute Criteria and Appendix F-3: Chronic Criteria. Taos Pueblo revised the aquatic life criteria for cadmium (acute and chronic) and silver (acute only). Taos Pueblo also adopted aquatic life criteria for the following substances: acrolein, total DDT and metabolites, diazinon, nonylphenol, total polychlorinated biphenyls (PCBs) - chronic only and tributyltin.

> EPA review: The new and revised aquatic life criteria in Appendix F-1 and Appendix F-3 are consistent with EPA's current criteria recommendations published under CWA section 304(a). EPA approves the new and revised aquatic life criteria in Appendix F, as protective of the aquatic life uses in Taos Pueblo's surface waters. EPA also approves the mercury criteria under Appendix F-1 and Appendix F-3. In addition, EPA approves the revised values in Appendix F-2 and Appendix F-4, which include calculated values for the hardness-dependent equations for metals in Appendix F-1 and F-3, respectively. As noted above, Taos Pueblo revised the cadmium and silver criteria. Any differences in the calculated values for criteria which were not revised (chromium, copper, lead, nickel and zinc) are due to rounding differences.

Appendix F-5 and Appendix F-6. Ammonia Standards for Fisheries Protection. Taos Pueblo replaced tables with the ammonia criteria with revised criteria.

> EPA review: EPA approves the ammonia criteria in Appendices F-5 and F-6 which are based on the agency's criteria recommendations published under CWA section 304(a) for protection of aquatic life.[4] The acute criteria are protective where species with sensitivities similar to the genus *Oncorhynchus* (i.e., cold water species) are present. Consistent with EPA's recommended criteria, the acute and chronic criteria in the *Taos Pueblo Water Quality Standards* include components for duration and frequency.

[3] National Academy of Sciences, National Academy of Engineering. 1973. *Water Quality Criteria 1972*. EPA-R3-73-003. U.S. Government Printing. Office. Washington, D.C.
[4] USEPA. 2013. *Aquatic life ambient water quality criteria for ammonia - freshwater 2013*. EPA-822-R-13-001. National Technical Information Service, Springfield, VA. Available at: https://www.epa.gov/wqc/aquatic-life-criteria-ammonia.

Appendix G. Ceremonial Use - Primary Human Contact

Taos Pueblo removed the fecal coliform criteria from the ceremonial use - primary human contact and retained the previously-approved criteria for *E. coli*.

> EPA review: The removal of the fecal coliform bacteria criteria is consistent with EPA's recommendation for protection of recreational uses. As noted above under Appendix E, Taos Pueblo does not monitor for fecal coliform as an indicator of surface water quality. EPA approves this revision under the ceremonial use - primary human contact.

Additional Revisions in the *Taos Pueblo Water Quality Standards*

Several revisions made in the *Taos Pueblo of Water Quality Standards* are non-substantive in nature and do not substantively modify the standards. These include revisions in Section I, Section IV, and Section VII. Additional changes made throughout the standards, were grammatical/punctuation changes or changes in phrasing that do not alter the meaning or implementation of the standards.

> EPA review: EPA considers such non-substantive edits to existing water quality standards to constitute new or revised standards that EPA has the authority and duty to approve or disapprove under CWA section 303(c)(3). While such revisions do not substantively change the meaning or intent of the existing water quality standards, EPA believes that it is reasonable to treat such non-substantive changes in this manner to ensure public transparency on what provisions are effective for purposes of the CWA. EPA notes that the scope of its action in reviewing and approving or disapproving such non-substantive changes would extend only as far as the actual non-substantive changes themselves. In other words, EPA's action on non-substantive changes to previously approved water quality standards would not constitute an action on the underlying previously approved standard. Any challenge to EPA's prior approval of the underlying water quality standard would be subject to any applicable statute of limitations and prior judicial decisions. EPA approves the non-substantive changes in the *Taos Pueblo Water Quality Standards*, pursuant to CWA section 303(c).

II. Revisions in the 2018 *Taos Pueblo Water Quality Standards* for which EPA is taking no action under CWA section 303(c)

Appendix C. Wildlife Habitat

Three revisions in the 2018 *Taos Pueblo Water Quality Standards* were made to reflect standards previously-effective under the CWA. These revisions address portions of the 2002 *Pueblo of Taos Water Quality Standards*, which were not approved by EPA for purposes of the CWA. Taos Pueblo removed the numeric criteria for total DDT and metabolites, mercury and total PCBs from the wildlife habitat use. Please see page 3 of this enclosure for EPA's approval action of the criteria for these substances under Appendix F. Aquatic Life.

III. Provisions in the 2002 *Taos Pueblo Water Quality Standards* previously approved for purposes of CWA section 303(c)

In its review of the 2002 *Pueblo of Taos Water Quality Standards*, EPA approved the items in Part III of this enclosure, subject to completion of consultation under section 7(a)(2) of the Endangered Species Act. Based on the evaluation conducted for the 2018 triennial revision, EPA concludes that there is no effect on federally-listed species or on critical habitat, as a result of its previous approval of the following provisions in the 2002 *Pueblo of Taos Water Quality Standards*.

- **Section III. Narrative Water Quality Standards:** Part A. General Standards (items 2, 3, 4 and 5); Part B. Temperature; Part C. Minerals; Part D. Determining Compliance with Narrative Standards [two references superseded by revisions in the 2018 standards]; Part E. Biological Criteria; Part F. Mixing Zones; and, Part G. Wetlands;
- **Section V. Numeric Water Quality Standards:** Part A. General Requirements and Part B. Development of Numeric Water Quality Standards;
- **Appendix C. Wildlife Habitat:** cyanide, chlorine and selenium criteria;
- **Appendix D. Fisheries:** criteria for dissolved oxygen, temperature, pH, turbidity, conductivity and chlorine;
- **Appendix E. Agriculture & Wildlife Watering:** criteria under column for the wildlife & livestock watering use; and,
- **Appendix F. Aquatic Life:** criteria in Appendix F-1, Appendix F-2, Appendix F-3, and Appendix F-4 [criteria for cadmium and silver superseded by revisions in the 2018 standards]; ammonia criteria in Appendix F-5, Appendix F-6 and Appendix F-7 [superseded by revisions in the 2018 standards].

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Ref: 8OWP-CWQ

OCT 12 2017

Mr. David Baumgarten, Chair
Water Quality Control Commission
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Re: EPA Approval of Revisions to Regulation #34 and #35

Dear Mr. Baumgarten:

The U.S. Environmental Protection Agency Region 8 has completed its review of certain revisions to water quality standards (WQS) adopted by Colorado's Water Quality Control Commission (Commission). The revisions addressed in today's action were adopted August 7, 2017, with an effective date of December 31, 2017. The submission letter included an Opinion of the Attorney General certifying that the standards were duly adopted pursuant to State law. Receipt of the revised standards on August 28, 2017 initiated the EPA's review pursuant to Clean Water Act (CWA) § 303(c). The EPA has completed its review, and this letter is to notify you of our action.

The revisions include basin-wide changes to the water quality standards for the San Juan River and Dolores River basins (Regulation #34) and the Gunnison and Lower Dolores River basins (Regulation #35). Generally, for individual segments in both basins, the revisions included changes to use classifications, numeric standards, antidegradation designations, temporary modifications, and segment descriptions.

Clean Water Act Review Requirements

The CWA § 303(c)(2), requires States and authorized Indian Tribes[1] to submit new or revised WQS to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA § 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the State or authorized Tribe and specify the changes to meet the requirements. If such changes are not adopted by the State or authorized Tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standard pursuant to CWA § 303(c)(4). The Region's goal has been, and will continue to be, to work closely with States and authorized Tribes

[1] CWA § 518(e) specifically authorizes EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA § 303. See also 40 CFR § 131.8.

throughout the standards revision process so that submitted revisions can be approved by the EPA. Pursuant to the EPA's Alaska Rule (40 CFR § 131.21(c)), new or revised state standards submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

Today's Action

We are pleased to inform you that today the EPA is approving the changes to Regulation #34 and #35 adopted on August 7, 2017, with the exception of certain revisions where the EPA is taking no action. EPA is not acting on the total phosphorus (TP) standards assigned to rivers/streams and the TP standards assigned to lakes/reservoirs that have a warm water aquatic life use classification. The rationale for the EPA's approval action is discussed in the enclosures.

Endangered Species Act Requirements

The EPA's approval of Colorado's WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). Section 7(a)(2) of the ESA states that "each federal agency … shall …insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical…" The EPA has initiated consultation under ESA Section 7(a)(2) with the U.S. Fish and Wildlife Service (Service) regarding our approval of the new or revised WQS. The EPA also has a CWA obligation, as a separate matter, to complete its WQS action. Therefore, in acting on the state's WQS today, EPA is completing its CWA § 303(c) responsibilities. However, because ESA consultation on the EPA's approval of certain standards is ongoing, for such revisions the EPA's approval is made subject to the outcome of the ESA consultation process. Should the consultation process with the Service identify information regarding impacts on listed species or designated critical habitat that supports amending the EPA's approval, the EPA will, as appropriate, revisit and amend its approval decision for those new or revised WQS.

Indian Country

The WQS approvals in today's letter apply only to water bodies in the state of Colorado, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian country. The Ute Mountain Ute Tribe applied for, and was granted, CWA § 303(c) authority over the Tribe's waters. The EPA approved the Ute Mountain Ute water quality standards on October 19, 2011. The Southern Ute Indian Tribe applied for CWA § 303(c) authority on trust lands within their Reservation, and EPA action on the application is pending.

Conclusion

We thank the Commission for its efforts to improve the water quality standards that protect the waters of Colorado. Questions regarding this action may be directed to David Moon at (303) 312-6833.

Sincerely,

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Enclosures (2)

ENCLOSURE 1
RATIONALE FOR EPA'S ACTION ON THE REVISIONS TO REGULATION #34
ADOPTED AUGUST 7, 2017

The Region is approving all WQS revisions adopted on August 7, 2017 with the exception of certain revisions where the EPA is taking no action. The discussion below summarizes the major changes to Classifications and Numeric Standards for San Juan River and Dolores River Basins (Regulation #34) and the rationale for the EPA's approval action.

Revisions were adopted as a result of the triennial review of the use classifications and numeric standards assigned to individual segments. The review process included incorporating revisions to the *Basic Standards and Methodologies for Surface Water* (Regulation #31) that were adopted by the Commission in 2016. For example, the Commission adopted revisions to:

- antidegradation designations,
- recreation classifications and standards,
- water supply classifications and health-based standards,
- temporary modifications (human health parameters),
- agriculture classifications and standards,
- aquatic life classifications,
- aquatic life-based numeric standards, and
- temporary modifications (aquatic life parameters).

In reviewing the changes to Colorado's water quality standards, the EPA read and carefully considered all documents and information submitted to the Commission during the State's rulemaking process, including but not limited to the proponent's pre-hearing statements and exhibits, responsive pre-hearing statements and exhibits, rebuttal statements and exhibits, sur-rebuttal statements and exhibits, and public comments.

INDIAN COUNTRY

The WQS approvals in today's letter apply only to water bodies in the state of Colorado, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian country. The Ute Mountain Ute Tribe applied for, and was granted, CWA § 303(c) authority over the Tribe's waters. The EPA approved the Ute Mountain Ute water quality standards on October 19, 2011. The Southern Ute Indian Tribe applied for CWA § 303(c) authority on trust lands within their Reservation, and EPA action on the application is pending.

STANDARDS APPROVED WITHOUT CONDITION

All water quality standards revisions in this category are approved without condition. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Antidegradation Designations

The Use Protected designation was removed from Piedra River segment 6a (tributaries to the Piedra River below the confluence with Devil Creek). Removing the Use Protected designation means the segment is now reviewable (i.e., a higher level of antidegradation protection was assigned).

The revision is consistent with Colorado's antidegradation rule at 31.8 of the *Basic Standards and Methodologies for Surface Waters* (previously approved by the EPA) and the EPA's water quality standards regulation at 40 CFR § 131.12.

Revisions to Recreation Classifications and Standards

No changes to recreation classifications were adopted. However, a new recreation-based chlorophyll-a numeric standard equal to the interim value at 31.17(d) (150 mg/m^2 Chl-a) was assigned to San Juan segments 1a, 1b, 3, 4, 5, 6a, 6b, 7, 9a, 10, 11a, 11c, and 12, Piedra segments 1, 2a, 2b, 3, 4a, 5a, 5b, 6a, and 6d, Los Pinos segments 1, 2a, 4, 5, and 6, Animas and Florida segments 1, 2, 3a, 3b, 3c, 6, 7, 8, 9, 10a, 10b, 12a, 12c, 12d, 13a, 13b, 13c, 13d, 14a, 14b, and 15, La Plata segments 1, 2a, 3a, 3c, 3d, 3e, 4a, 4c, 5, 6a, 6b, 6c, 7a, 8, 9, and 10, and Dolores segments 1, 2, 3, 4a, 5a, 5b, 6, 7, 8, 9, 10a, 10b, 11a, 11b, and 11c.

The Region concludes that the revisions to recreation-based standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

Revisions to Water Supply Use Classifications and Health-Based Standards

Changes to water supply use classifications and the associated numeric standards were adopted including, for example, the addition of a water supply use classification and numeric standards to La Plata segments 3e, 6b, and 7b, and Los Pinos segment 6. The new water supply standards will enhance source water protection efforts in these watersheds.

The water supply use classification was removed from Animas and Florida segment 13c (4.5 miles of an un-named tributary to Coal Gulch) and Piedra segment 6d (1.3 miles of Steven's Draw from the outlet of Lake Forest Reservoir to the confluence with Martinez Creek) based on evidence that water supply uses currently do not exist and cannot reasonably be expected in the future. The Region concludes that the documentation that was developed (WQCD Exhibit 34-2) appropriately justifies removal of the water supply use classification (i.e., based on consideration of the use and value of these segments for water supply uses). Accordingly, the Region finds that the revisions are consistent with 40 CFR § 131.10(a) and § 131.10(k)(3).

Numeric water supply-based standards for cadmium, lead and nickel were applied to various segments as necessary to assure that a full set of numeric standards is in place for protection of the water supply use classification.

A Direct Use Water Supply (DUWS) sub-classification was applied to Piedra segment 7 (Hatcher and Stevens Reservoirs), Animas and Florida segment 23 (City Reservoir #1 and Lake Durango), La Plata segment 4b (Jackson Gulch Reservoir), and Dolores segment 4b (McPhee Reservoir). The DUWS sub-classification (Regulation 31.13(1)(d)(i)) was approved by EPA on July 14, 2016.

Human health-based standards were assigned to a number of aquatic life class 2 segments: San Juan River segment 19 (fish ingestion), Los Pinos River segment 6 (fish ingestion), and La Plata River segment 19 (fish ingestion). The additional numeric standards will enhance protection of human health consistent with the Clean Water Act § 101(a)(2) goal.

The Region concludes that all revisions to water supply use classifications and health-based standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

Revisions to Temporary Modifications (Human Health Parameters)

A water supply-based arsenic temporary modification was applied to Los Pinos segment 6. The revision is consistent with the general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, and are subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on August 4, 2011.

Revisions to Agriculture Use Classifications and Standards

Additional numeric standards for the protection of agriculture uses were applied to Dolores segment 9. A molybdenum standard of 150 µg/L was applied to segments with an agriculture use classification where livestock or irrigated forage are present or expected to be present.

The Region concludes that all revisions to agriculture use classifications and standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

STANDARDS APPROVED SUBJECT TO ESA CONSULTATION

All water quality standards revisions in this category are approved, subject to the completion of ESA consultation. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Revisions to Aquatic Life Classifications

More stringent aquatic life use classifications were adopted for several segments based on the Division's proposal and information such as macroinvertebrate, fish population, and ambient stream temperature

monitoring data. Generally, Class 1 uses are appropriate for segments that currently are capable of supporting a wide variety of biota, including sensitive species, or could sustain such biota if not for correctable water quality conditions. The aquatic life use classification was upgraded for all or a portion of: Animas and Florida segment 3a (a portion of the Animas River was moved from segment 2, which has no aquatic life use assigned, to segment 3a, which is Aquatic Life Cold 1), Dolores River segment 9 (lower Silver Creek was upgraded from Aquatic Life Cold 2 to Aquatic Life Cold 1), and San Juan River segment 11c (McCabe Creek was upgraded from Aquatic Life Warm 1 to Aquatic Life Cold 1).

A less stringent aquatic life use was adopted for Dolores River Segment 11c based on the conclusions of a use attainability analysis (WQCD Exhibit 34-8). The use classification was changed from Aquatic Life Cold 1 to Aquatic Life Warm 1. This segment includes tributaries to McPhee Reservoir, tributaries to the Dolores River from the outlet of McPhee Reservoir to the bridge at Bradfield Ranch, Beaver Creek, and Plateau Creek. The UAA concludes that the "...aquatic life community in proposed Segment 11c is a warm aquatic life community. The species expected to occur are warm species, and Segment 11c is located in a geographic setting that is more typical of warm water fish habitat." Based on the evidence presented in the UAA, EPA concludes that the change in use classification is consistent with 40 CFR § 131.10(g) and (j)(2).

The Region concludes that all revisions to aquatic life classifications are consistent with the EPA's water quality standards regulation at 40 CFR § 131.10.

Revisions to Numeric Standards for the Protection of Aquatic Life Classifications

Various changes to aquatic life-based numeric standards were adopted, including revisions associated with the use classification changes discussed above. Revisions were also adopted to achieve consistency with the changes to Regulation #31 table value standards adopted by the Commission in 2016.

- Updated hardness-dependent numeric standards for cadmium (consistent with the EPA criteria recommendations finalized in 2016) were assigned to a number of segments on a targeted basis. These segments included Animas and Florida segments 3a, 3c, 4a, 4b, 6 and 9, and Dolores River segment 9.

- Chlorophyll-a numeric standards (equal to the interim values in Regulation #31) were assigned to protect aquatic life and recreation uses assigned to the lakes and reservoirs in San Juan River segments 8, 13, 14, 15a, 16, 17, 18a, and 19, Piedra River segments 8, 9, 10, and 11a, Los Pinos River segments 8, 9, 10, and 11a, Animas and Florida River segments 12b, 16, 17, 18, 19, 20, 21, 22, and 23, La Plata River segments 4b, 11, 12, 13, 15, 16, 17, 18, and 19, and Dolores River segments 4b, 12, 13, 14, and 15. The 8 µg/L (cold water aquatic life) and 20 µg/L (warm water aquatic life)) chlorophyll-a interim values at 31.17(d) were approved by EPA on July 14, 2016.

- Total phosphorus (TP) standards (equal to the 25 µg/L interim value in Regulation #31) were assigned to protect aquatic life and recreation uses assigned to the cold water lakes/reservoirs in

San Juan River segments 13, 15a, 15b, 16, and 17, Piedra River segments 8, 9, and 10, Los Pinos River segments 8, 9, 10, and 11a, Animas and Florida River segments 12b, 16, 17, 18, 19, 20, 21, 22, and 23, La Plata River segments 4b, 12, and 15, and Dolores River segments 4b, 12, 13, 14, and 15. The 25 µg/L TP interim value for cold lakes and reservoirs at Regulation 31.17(b) was approved by EPA on July 14, 2016.

- The acute and chronic numeric temperature values at 34.6(3) were revised consistent with the changes to Regulation 31, Table I, adopted in 2016.

- Site-specific revisions to temperature standards were adopted for a number of segments based on a review of multiple lines of evidence including the expected fish community, the existing thermal regime, anthropogenic influences on the thermal regime, and whether such influences are reversible. See Table 1. As noted in the Statement of Basis and Purpose, "ambient temperature standards were adopted where a use attainability analysis was conducted demonstrating that elevated ambient temperatures are the result of natural conditions or are not feasible to improve to the level required by the current numeric standard, but are adequate to protect the highest attainable use." For other segments, the temperature tier assigned to the segment was modified (e.g., from CS-I to CS-II) based on the thermal requirements of the existing and expected fish community.

Table 1. Site-Specific Revisions to Temperature Standards

Type of Proposed Revision	Segments	Notes
New Ambient Quality-Based Standards	San Juan 6b	Ambient-Based WQS. San Juan River MWAT = 21.4 and DM = 27.8 (4/1 to 10/31). Mill Creek MWAT = 21.1 and DM = 27.8 (4/1 to 10/31). WQCD Exhibit 34-4.
	San Juan 11c	Ambient-Based WQS. MWAT = 21.6 and DM = 25.1 (4/1 to 10/31). WQCD Exhibit 34-8.
	Piedra 4a	Ambient-Based WQS. Piedra River MWAT = 20.7 and DM = 26.5 (4/1 to 10/31). Devil Creek MWAT = 19.9 and DM = 26.5 (4/1 to 10/31). WQCD Exhibit 34-6.
	Dolores 4b	Ambient-Based WQS. McPhee Reservoir MWAT = 21.1 (4/1 to 12/31). Summit Reservoir MWAT = 21.0 (4/1 to 12/31). WQCD Exhibit 34-9.
Revisions to Temperature Tiers	San Juan 6a Piedra 5b Dolores 10b Dolores 11b	CS-I to CS-II. WQCD Exhibit 34-3. CS-I to CS-II. WQCD Exhibit 34-6. CS-I to CS-II. WQCD Exhibit 34-7. CS-I to CS-II. WQCD Exhibit 34-8.
	La Plata 3d	CS-II to CS-I. WQCD Exhibit 34-1.
	Dolores 11c	CS-II to WS-II. WQCD Exhibit 34-8.

With the exception of the revisions where EPA is taking no action, the Region concludes that the revisions to aquatic life-based numeric standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

Revisions to Temporary Modifications (Aquatic Life Parameters)

For Animas and Florida segment 3b, the cadmium and zinc temporary modifications were deleted and the expiration date for the copper temporary modification was extended from 12/31/2017 to 12/21/2022. A new copper temporary modification was assigned to Animas and Florida segment 4a (expiration 12/31/2022). These revisions were supported by information submitted by the Town of Silverton. The Statement of Basis and Purpose notes that there is "uncertainty regarding the degree to which copper loading from Silverton's effluent is irreversible" and that Silverton "will complete an alternatives analysis to resolve this uncertainty and determine how much copper reduction is feasible."

For La Plata segments 7a and 9, revisions to the ammonia temporary modifications included extending the expiration date from 6/30/2018 to 6/30/2020. These revisions were supported by information submitted by the Lee Mobile Home Park and Vista Verde Village. The Statement of Basis and Purpose notes that there is "uncertainty regarding the degree to which ammonia loading from Lee Mobile Home Park and Vista Verde's effluent discharges is irreversible" and that these facilities "will complete an alternatives analysis to resolve this uncertainty and determine how much water quality improvement is feasible."

The revisions are consistent with the general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, and are subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on August 4, 2011.

REVISIONS WHERE THE EPA IS TAKING NO ACTION

- All segment-specific total phosphorus (TP) numeric standards based on the interim value for river/stream segments with a cold water aquatic life classification (110 µg/L TP) or a warm water aquatic life classification (170 µg/L TP); and
- All segment-specific TP numeric standards based on the interim value for lake/reservoir segments with a warm water aquatic life classification (83 µg/L TP).

ENCLOSURE 2
RATIONALE FOR EPA'S ACTION ON THE REVISIONS TO REGULATION #35
ADOPTED AUGUST 7, 2017

The Region is approving all WQS revisions adopted on August 7, 2017 with the exception of certain revisions where the EPA is taking no action. The discussion below summarizes the major changes to Classifications and Numeric Standards for Gunnison and Lower Dolores River Basins (Regulation #35) and the rationale for the EPA's approval action.

Revisions were adopted as a result of the triennial review of the use classifications and numeric standards assigned to individual segments. The review process included incorporating revisions to the *Basic Standards and Methodologies for Surface Water* (Regulation #31) that were adopted by the Commission in 2016. For example, the Commission adopted revisions to:

- antidegradation designations,
- recreation classifications and standards,
- water supply classifications and health-based standards,
- temporary modifications (human health parameters),
- agriculture classifications and standards,
- aquatic life classifications,
- aquatic life-based numeric standards, and
- temporary modifications (aquatic life parameters).

In reviewing the changes to Colorado's water quality standards, the EPA read and carefully considered all documents and information submitted to the Commission during the State's rulemaking process, including but not limited to the proponent's pre-hearing statements and exhibits, responsive pre-hearing statements and exhibits, rebuttal statements and exhibits, sur-rebuttal statements and exhibits, and public comments.

INDIAN COUNTRY

The WQS approvals in today's letter apply only to water bodies in the state of Colorado, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian country. The Ute Mountain Ute Tribe applied for, and was granted, CWA § 303(c) authority over the Tribe's waters. The EPA approved the Ute Mountain Ute water quality standards on October 19, 2011. The Southern Ute Indian Tribe applied for CWA § 303(c) authority on trust lands within their Reservation, and EPA action on the application is pending.

STANDARDS APPROVED WITHOUT CONDITION

All water quality standards revisions in this category are approved without condition. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Antidegradation Designations

For Upper Gunnison segment 1, which is a segment where an Outstanding Waters designation was assigned previously, the description of the segment was expanded to include the Raggeds Wilderness Area. In addition to this change, a Use Protected designation was applied to San Miguel segments 12b and 12c in conjunction with changing the aquatic life use classification from Cold 2 to Warm 2. These revisions are consistent with Colorado's antidegradation rule at 31.8 of the *Basic Standards and Methodologies for Surface Waters* (previously approved by the EPA) and the EPA's water quality standards regulation at 40 CFR § 131.12.

Revisions to Recreation Classifications and Standards

No changes to recreation classifications were adopted. However, a new recreation-based chlorophyll-a numeric standard equal to the interim value at 31.17(d) (150 mg/m^2 Chl-a) was assigned to Upper Gunnison segments 1, 2, 4, 5a, 6a, 6b, 6c, 7, 9, 10a, 10b, 11, 12, 13, 15a, 15b, 16a, 16b, 17a, 17b, 18a, 18b, 19, 20, 21, 22, 23, 24, 26, 29a, 29b, 30, 31, and 32, North Fork of the Gunnison segments 4a, 4b, 4c, 5a, 5b, 6a, 6b, and 6c, Uncompahgre segments 1, 2, 3b, 3c, 5, 6a, 7, 8, 9, 10a, 10b, 11, 12, 13a, 13b, 13c, 14, 15a, and 15b, Lower Gunnison segments 3, 4a, 4b, 4c, 5a, 5b, 6a, 6b, 6c, 7a, 7b, 8a, 8b, 10, 11a, 11b, and 12, San Miguel segments 1, 2, 3a, 3b, 6a, 6b, 7, 8, 9, 10a, 10b, 11a, 11b, 12a, 12b, and 12c, and Dolores segments 3a, 3b, 3c, 4, 5, and 6.

The Region concludes that the revisions to recreation-based standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

Revisions to Water Supply Use Classifications and Health-Based Standards

Changes to water supply use classifications and the associated numeric standards were adopted including, for example, the addition of a water supply use classification and numeric standards to North Fork of the Gunnison segment 6c, Uncompahgre segments 12 and 13c, Lower Gunnison segment 6c, and San Miguel segment 5a. The new water supply standards will enhance source water protection efforts in these watersheds.

The water supply use classification was removed from North Fork of the Gunnison segment 4c, Uncompahgre segment 10b, and San Miguel segment 12c based on evidence that water supply uses currently do not exist and cannot reasonably be expected in the future. The Region concludes that the documentation that was developed (WQCD Exhibit 35-2) appropriately justifies removal of the water supply use classification (i.e., based on consideration of the use and value of these segments for water supply uses). Accordingly, the Region finds that the revisions are consistent with 40 CFR § 131.10(a) and § 131.10(k)(3).

Numeric water supply-based standards were applied to various segments as necessary to assure that a full set of numeric standards is in place for protection of the water supply use classification. For example, water supply standards for cadmium, nickel and lead were assigned to various segments where site data indicated that the hardness-adjusted aquatic life standards are less stringent than the table values for protection of the water supply use classification. In addition, water supply standards were applied to Upper Gunnison segments 9 (molybdenum), 11 (molybdenum), 20 (uranium - narrative clarification), and 21 (uranium), North Fork of the Gunnison segment 11 (iron) and San Miguel segment 19 (arsenic).

A Direct Use Water Supply (DUWS) sub-classification was applied to Upper Gunnison segments 34 (Glazer Reservoir) and 37 (Evergreen Lake), Uncompahgre segments 18 (Lake Otonawanda) and 22 (Fairview Reservoir), Lower Gunnison segment 16 (Hallenbeck Reservoir, Juniata Reservoir), and San Miguel segments 19 (Town Reservoir) and 20 (Gurley Reservoir). The DUWS sub-classification (Regulation 31.13(1)(d)(i)) was approved by EPA on July 14, 2016.

Human health-based standards were assigned to a number of aquatic life class 2 segments: North Fork of the Gunnison segment 11 (water + fish standards), Uncompahgre segment 21 (fish ingestion standards), and Lower Gunnison segment 9 (fish ingestion standards). The additional numeric standards will enhance protection of human health consistent with the Clean Water Act § 101(a)(2) goal.

For Upper Gunnison segment 35, the arsenic standard was revised from 0.02 µg/L to 7.6 µg/L because there is no water supply use classification assigned to the segment.

The Region concludes that all revisions to water supply use classifications and health-based standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

Revisions to Temporary Modifications (Human Health Parameters)

A water supply-based arsenic temporary modification was applied to Uncompahgre segment 12, and a water supply-based uranium temporary modification was applied to Upper Gunnison segment 21. The revisions are consistent with the general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, and are subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on August 4, 2011.

Revisions to Agriculture Use Classifications and Standards

A molybdenum standard of 150 µg/L was applied to segments with an agriculture use classification where livestock or irrigated forage are present or expected to be present.

The Region concludes that all revisions to agriculture use classifications and standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

STANDARDS APPROVED SUBJECT TO ESA CONSULTATION

All water quality standards revisions in this category are approved, subject to the completion of ESA consultation. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Revisions to Aquatic Life Classifications

A less stringent aquatic life use was adopted based on the conclusions of a use attainability analysis for Uncompahgre segment 15b (Cold 2 to Warm 2, WQCD Exhibit 35-9), Lower Gunnison segments 5b, 6b, and 6c (all Cold 1 to Warm 1, WQCD Exhibit 35-10), and San Miguel segments 10b (Cold 1 to Warm 1, WQCD Exhibit 35-11), 12b, and 12c (both Cold 2 to Warm 2, WQCD Exhibit 35-11). Based on the evidence presented in the UAAs, EPA concludes that these revisions to use classifications are consistent with 40 CFR § 131.10(g) and (j)(2). The Region concludes that all revisions to aquatic life classifications are consistent with the EPA's water quality standards regulation at 40 CFR § 131.10.

Revisions to Numeric Standards for the Protection of Aquatic Life Classifications

Various changes to aquatic life-based numeric standards were adopted, including revisions associated with the use classification changes discussed above. Revisions were also adopted to achieve consistency with the changes to Regulation #31 table value standards adopted by the Commission in 2016.

- Updated hardness-dependent numeric standards for cadmium (consistent with the EPA criteria recommendations finalized in 2016) were assigned to a number of segments on a targeted basis. These segments included Upper Gunnison segments 7, 10a, 10b, 11, 12, 29a, 30, and 31, North Fork of the Gunnison segment 4c, Uncompahgre segments 2, 3a, 3b, 3c, 3d, 3e, 3f, 5, 8, and 9, and San Miguel segments 2, 3a, 3b, 6a, and 6b.

- Numeric acute and chronic lead standards were applied to North Fork of the Gunnison segment 11 to protect the aquatic life use classification.

- Chlorophyll-a numeric standards (equal to the interim values in Regulation #31) were assigned to protect aquatic life and recreation uses assigned to the lakes and reservoirs in Upper Gunnison segments 33, 34, 35, 36, 37, and 38, North Fork of the Gunnison segments 7, 8, 9, 10, and 11, Uncompahgre segments 16, 17, 18, 20, 21, and 22, Lower Gunnison segments 13, 14, 15, 16, 17, 18, and 19, San Miguel segments 13, 14, 15, 16, 17, 18, 19, and 20, and Lower Dolores segments 7 and 8. The 8 µg/L (cold water aquatic life) and 20 µg/L (warm water aquatic life)) chlorophyll-a interim values at 31.17(d) were approved by EPA on July 14, 2016.

- Total phosphorus (TP) standards (equal to the 25 µg/L interim value in Regulation #31) were assigned to protect aquatic life and recreation uses assigned to the cold water lakes/reservoirs in Upper Gunnison segments 33, 34, 35, 36, 37, and 38, North Fork of the Gunnison segments 7, 8, 9, and 10, Uncompahgre segments 16, 17, and 18, Lower Gunnison segments 14, 15, 17, and 18,

San Miguel segments 13, 14, 15, 16, 17, 18, 19, and 20, and Lower Dolores segment 7. The 25 µg/L TP interim value for cold lakes and reservoirs at Regulation 31.17(b) was approved by EPA on July 14, 2016.

- For Lower Gunnison River segment 2, the cadmium and silver standards for the protection of trout were removed because this segment has an Aquatic Life Warm 1 use classification.

- For San Miguel River segment 6a, a 190 µg/L zinc standard was reinstated after being erroneously deleted as a result of a previous rulemaking.

- The acute and chronic numeric temperature values at 35.6(3) were revised consistent with the changes to Regulation 31, Table I, adopted in 2016.

- Site-specific revisions to temperature standards were adopted for a number of segments based on a review of multiple lines of evidence including the expected fish community, the existing thermal regime, anthropogenic influences on the thermal regime, and whether such influences are reversible. See Table 1. As noted in the Statement of Basis and Purpose, "ambient temperature standards were adopted where a use attainability analysis was conducted demonstrating that elevated ambient temperatures are the result of natural conditions or are not feasible to improve to the level required by the current numeric standard, but are adequate to protect the highest attainable use." For other segments, the temperature tier assigned to the segment was modified (e.g., from CS-I to CS-II) based on the thermal requirements of the existing and expected fish community.

Table 2. Site-Specific Revisions to Temperature Standards

Type of Proposed Revision	Segments	Notes
New Ambient Quality-Based Standards	Upper Gunnison 8	Summer season June 1 to October 15
	North Fork Gunnison 3	Summer season March 16 to November 15
	Uncompahgre 3e	Summer season April 1 to November 15
	Upper Gunnison 16b	CS-I Criteria, Summer April 1 to November 15
	Upper Gunnison 18b	MWAT = 18.9 (4/1 to 10/31)
	North Fork Gunnison 3	MWAT = 21.9 and DM = 26.5 (3/16 to 11/15)
	Upper Gunnison 38	DM = 24.2 (Lake San Christobal, Taylor Park Reservoir, and Blue Mesa Reservoir)
Revisions to Temperature Tiers	North Fork Gunnison 4b	CS-I to CS-II
	Lower Gunnison 5a	CS-II to CS-I
	Uncompahgre 3c, 13b and 13c	CS-I to CS-II
	Lower Gunnison 8b	CS-I to CS-II
	Uncompahgre 15b	CS-II to WS-II
	Lower Gunnison 5b, 6b, and 6c	CS-II to WS-II
	San Miguel 10b and 12b	CS-II to WS-II

With the exception of the revisions where EPA is taking no action, the Region concludes that the revisions to aquatic life-based numeric standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

Revisions to Temporary Modifications (Aquatic Life Parameters)

For Upper Gunnison segment 12, new acute cadmium and copper temporary modifications were adopted (April 1 through June 30), and revisions were adopted for the chronic cadmium, copper, and zinc temporary modifications (April 1 through June 30). An expiration date of 12/31/2022 was adopted for these new/revised temporary modifications. For Uncompahgre River segment 4b, the chronic selenium temporary modification was deleted.

The revisions are consistent with the general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, and are subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on August 4, 2011.

Revisions Where The EPA Is Taking No Action

- All segment-specific total phosphorus (TP) numeric standards based on the interim value for river/stream segments with a cold water aquatic life classification (110 µg/L TP) or a warm water aquatic life classification (170 µg/L TP); and
- All segment-specific TP numeric standards based on the interim value for lake/reservoir segments with a warm water aquatic life classification (83 µg/L TP).

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APR 2 4 2019

Ref: OWP-WQ

Mr. Rick Hum, Chair
Water Quality Control Commission
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Re: EPA Approval of Revisions to Regulation #32 and #36

Dear Mr. Hum:

The U.S. Environmental Protection Agency Region 8 (EPA or Region) has completed its review of certain revisions to water quality standards (WQS) adopted by Colorado's Water Quality Control Commission (Commission) on August 6, 2018. As summarized in Table 1, the Commission adopted new/revised WQS for segments in the Arkansas River Basin (Regulation #32) and the Rio Grande Basin (Regulation #36). Generally, changes were adopted to use classifications, numeric standards, antidegradation designations, temporary modifications, discharger-specific variances, and segment descriptions. The public review process included three hearings, culminating with the rulemaking hearing on June 11, 2018. The proposed revisions and supporting analyses were available to the public on March 14, 2018. The submission letter included an Opinion of the Attorney General certifying that the standards were duly adopted pursuant to State law. Receipt of the revised standards on August 28, 2018 initiated the EPA's review pursuant to Clean Water Act (CWA) § 303(c). The EPA has completed its review, and this letter is to notify you of our action.

CLEAN WATER ACT REVIEW REQUIREMENTS

CWA § 303(c)(2) requires States and authorized Indian Tribes[1] to submit new or revised WQS to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA § 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the State or authorized Tribe and specify the changes to meet the requirements. If such changes are not adopted by the State or authorized Tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standard pursuant to CWA § 303(c)(4). The Region's goal has been, and will continue to be, to work closely with States and authorized Tribes throughout the standards revision process so that submitted revisions can be approved by the EPA. Pursuant to 40 CFR § 131.21(c), new or revised state standards submitted after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

TODAY'S ACTION

We are pleased to inform you that, with one exception, EPA is approving the changes to Regulation #32 and #36 adopted on August 6, 2018 (Table 1). The WQS revisions approved today are discussed in the enclosures. The

[1] CWA § 518(e) specifically authorizes EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA § 303. See also 40 CFR § 131.8.

single exception is that, we are not acting on the new total phosphorus (TP) numeric standard assigned to Upper Arkansas River segment 20b (i.e., the portion of the segment above all point source discharges). We understand and very much appreciate that the Water Quality Control Division (WQCD or Division) is now working to develop updated interim values for TP and total nitrogen (TN), as described in the "10-year roadmap". The Region will continue to partner and work collaboratively with the WQCD regarding that important project.

Table 1
Summary of New/Revised WQS
Regulation #32 and #36

Regulation	Description	EPA Action
32 and 36	Changes to antidegradation designations	Approved
32 and 36	Changes to water supply uses; changes to human health-based numeric standards and temporary modifications	Approved
32 and 36	Changes to aquatic life uses; changes to aquatic life-based numeric standards and temporary modifications	Approved
32 and 36	Changes to agriculture-based numeric standards	Approved
32	Changes to recreation-based numeric standards	Approved
32	New discharger-specific variances for Pueblo (selenium and sulfate) and Las Animas (selenium)	Approved
32	Application of a new total phosphorus numeric standard (Upper Arkansas River segment 20b)	No Action

INDIAN COUNTRY

The WQS approvals in today's letter do not extend to Indian country as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or eligible Indian tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian country.

ENDANGERED SPECIES ACT REQUIREMENTS

The EPA's approval of Colorado's WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). Section 7(a)(2) of the ESA states that "each federal agency … shall …insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical…" The EPA has initiated consultation under ESA Section 7(a)(2) with the U.S. Fish and Wildlife Service (Service) regarding our approval of the new or revised WQS. The EPA also has a CWA obligation, as a separate matter, to complete its WQS action. Therefore, in acting on the state's WQS today, EPA is completing its CWA § 303(c) responsibilities. However, because ESA consultation on the EPA's approval of certain standards is ongoing, for such revisions the EPA's approval is made subject to the outcome of the ESA consultation process. EPA's approval does not foreclose either the formulation by the Services, or the implementation by EPA, of any alternatives that might be determined in the consultation to be needed to comply with section 7(a)(2). EPA retains the full range of options available under CWA §303(c) for ensuring water quality standards are environmentally protective.

CONCLUSION

We thank the Commission for its efforts to improve the water quality standards that protect the waters of Colorado. Questions regarding this action may be directed to David Moon at (303) 312-6833.

Sincerely,

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Enclosures (3)

- Enclosure 1 - Rationale for EPA's Action on the Revisions to Regulation #32 Adopted August 6, 2018
- Enclosure 2 - Rationale for EPA's Action on the Revisions to Regulation #36 Adopted August 6, 2018
- Enclosure 3 - Rationale for EPA's Action on Discharger-Specific Variances Adopted August 6, 2018

ENCLOSURE 1
RATIONALE FOR EPA'S ACTION ON THE REVISIONS TO REGULATION #32
ADOPTED AUGUST 6, 2018

The discussion below summarizes the major changes to Classifications and Numeric Standards for the Arkansas River Basin (Regulation #32) and the rationale for the EPA's approval action.

Revisions were adopted to the water quality standards assigned to individual segments. The revisions included updates to Regulation #32 to make it consistent with the *Basic Standards and Methodologies for Surface Water* (Regulation #31), as revised by the Commission in 2016. For example, the Commission adopted revisions to:

- antidegradation designations,
- recreation classifications and standards,
- water supply classifications and health-based standards,
- temporary modifications (human health parameters),
- discharger-specific variances,
- agriculture numeric standards,
- aquatic life classifications,
- aquatic life-based numeric standards, and
- temporary modifications (aquatic life parameters).

In reviewing the changes to Regulation #32, the EPA read and carefully considered the rule changes, the Statement of Basis and Purpose adopted by the Commission, and all documents and information submitted to the Commission during the State's rulemaking process, including the proponent's pre-hearing statements and exhibits, responsive pre-hearing statements and exhibits, rebuttal statements and exhibits, sur-rebuttal statements and exhibits, and public comments.

ANTIDEGRADATION, RECREATION, WATER SUPPLY, HUMAN HEALTH, AND AGRICULTURE STANDARDS

All water quality standards revisions in this category are approved without condition. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Antidegradation Designations

A reviewable designation was assigned to certain streams now included in Fountain Creek segment 4c (Mainstems of Kettle Creek, North Rockrimmon Creek, and Mesa Creek, including tributaries and wetlands). A "reviewable" designation means that water quality must be maintained and protected unless it is determined, based on an antidegradation review, that allowing lower water quality is necessary (31.8(3)). These streams were previously Use Protected (i.e., a higher level of antidegradation protection was assigned). In addition, the following streams that previously had a Use Protected designation were moved to a Fountain Creek segment 3a, which is reviewable: Cheyenne Creek including tributaries and wetlands, Bear Creek below Gold Camp Road, Little Fountain Creek from the source to Highway 115, Rock Creek from the source to Highway 115, North Monument Creek from the source to the confluence with Monument Creek, and Beaver Creek from the source to the confluence with Monument Creek.

The revisions improve the level of water quality protection. In addition, they are consistent with Colorado's antidegradation rule at 31.8 of the *Basic Standards and Methodologies for Surface Waters* (previously approved by the EPA) and the EPA's water quality standards regulation at 40 CFR § 131.12.

Recreation-Based Numeric Standards

No changes to recreation classifications were adopted. However, a new recreation-based chlorophyll-a numeric standard for chlorophyll-a (150 mg/m^2 Chl-a) was assigned to Upper Arkansas River segment 20b. This numeric standard is consistent with, and based upon, Colorado's interim value at 31.17(d) for river and stream segments. EPA approved the interim value in an action letter dated July 14, 2016. The Region concludes that the revision is consistent with EPA's water quality standards regulation at 40 CFR § 131.11.

Water Supply Use Classifications and Human Health-Based Standards

Changes to water supply use classifications and human health-based standards included the following:

- Middle Arkansas River segments 4c, 4d, 12, and 14, and Lower Arkansas River segment 7: Water supply use classifications and the associated numeric (EPA approved) table value standards were assigned. The new water supply standards will enhance source water protection efforts in these watersheds.

- The water supply use classification was removed from Lower Arkansas River segment 2d (WQCD proposal) and Fountain Creek segments 4a and 4d (AFCURE proposal) based on evidence that water supply uses currently do not exist and are not expected in the future. The Region concludes that the documentation that was developed (WQCD Exhibit 32-5, AFCURE's proponent's pre-hearing and rebuttal statements) appropriately justifies removal of the water supply use classification (i.e., based on consideration of the use and value of these segments for water supply uses). Accordingly, the Region finds that the revisions are consistent with 40 CFR § 131.10(a) and § 131.10(k)(3).

- A Direct Use Water Supply (DUWS) sub-classification was applied to Upper Arkansas River segment 30 (Twin Lakes and Mt. Elbert Forebay) and 37 (Ott Reservoir), and Fountain Creek segment 8 (Big Tooth Reservoir, Lake Moraine, Woodmoor Lake), 11 (Gold Camp Reservoir, Lower Reservoir, Keeton Reservoir, South Suburban Reservoir, Unknown Reservoir). The DUWS sub-classification (Regulation 31.13(1)(d)(i)) was approved by EPA on July 14, 2016.

- Numeric water supply-based (and EPA approved) table value standards for cadmium, lead and nickel were applied to various segments as necessary to assure that a full set of numeric standards is in place for protection of the water supply use classification.

- For Fountain Creek segment 2a, the previously-adopted ambient quality-based numeric standard for sulfate (water supply) was deleted and the (EPA approved) table value standard was applied.

- In support of the CWA § 101(a)(2) goal and to assure protection of human health, human health-based standards (water + fish ingestion or fish ingestion only) were applied to the following segments with a Class 2 aquatic life use classification: Upper Arkansas River segment 14a, Middle Arkansas River segment 9, Fountain Creek segment 5 (arsenic), and Lower Arkansas River segment 9b.

The Region concludes that all revisions to water supply use classifications and health-based standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

Discharger-Specific Variances (Human Health Uses)

A discharger-specific variance (DSV) for sulfate was applied to Lower Arkansas River segment 1a. Enclosure 3 provides a description of the DSV and the rationale for EPA's approval action.

Temporary Modifications (Human Health Uses)

A new water supply-based arsenic temporary modification (expiration 12/31/2021) was applied to Lower Arkansas River segment 9b, based on a demonstration that the factual situation satisfies all eligibility requirements. The revision is consistent with the EPA-approved general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, and are subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on October 2, 2017.

Agriculture Numeric Standards

A molybdenum standard of 150 µg/L was applied to segments with an agriculture use classification where livestock or irrigated forage are present or expected to be present. This numeric standard is consistent with the numeric standards applied in the South Platte River basin (2015), San Juan River basin (2017), and Gunnison River basin (2017). EPA approved those revisions with letters dated September 30, 2016, and October 12, 2017, respectively, based on the evidence that this numeric standard is protective of livestock watering uses, and consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

AQUATIC LIFE PROTECTION STANDARDS

EPA approves the revisions to aquatic life use classifications and standards, with one exception discussed below. For each of the revisions, the basis for approval is that the changes are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Aquatic Life Classifications

Changes to aquatic life use classifications included the following:

- More stringent Class 1 aquatic life use classifications were adopted for several segments. Generally, Class 1 uses are appropriate for segments that are capable of supporting a wide variety of biota, including sensitive species, or could sustain such biota if not for correctable water quality conditions. These revisions were supported by multiple lines of evidence, including macroinvertebrate, fish population, and ambient stream temperature monitoring data.
  - Upper Arkansas River segment 14e was upgraded from Cold 2 to Cold 1 based on WQCD Exhibit 32-2.
  - Fountain Creek segments 4c (Warm 2 to Warm 1), 4d (Warm 2 to Warm 1), and 5a (Warm 2 to Warm 1) were upgraded based on evidence submitted by AFCURE.

- A less stringent aquatic life use was adopted for Upper Arkansas River segment 14d based on the conclusions of a use attainability analysis (WQCD Exhibit 32-2). The use classification was changed from Aquatic Life Cold 2 to Aquatic Life Warm 1. This segment includes all tributaries to the Arkansas River, including wetlands, which are not on National Forest lands, from immediately above the confluence of 6-mile Creek to the inlet to Pueblo Reservoir, except for specific listings in segments 14a, 14c, 14e, 14f, and 15-27. The Use Attainability Analysis (UAA) concluded that "many of the streams are ephemeral or intermittent, and the fish community observed in these tributaries is a diverse warm water community supporting reproduction of several species" (Exhibit 32-2, page 30). Based on the evidence presented in the UAA, EPA concludes that the change in use classification is consistent with 40 CFR §§ 131.10(g) and (j)(2).

The Region concludes that all revisions to aquatic life classifications are consistent with the EPA's water quality standards regulation at 40 CFR § 131.10. The revisions are approved, subject to ESA consultation.

Numeric Standards for the Protection of Aquatic Life Classifications

Changes to numeric standards for the protection of aquatic life classifications included the following:

- The acute and chronic numeric temperature values at 32.6(3) were revised consistent with the changes to Regulation 31, Table I, adopted in 2016 and approved by EPA's October 2, 2017 action letter. Because they are consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- Updated hardness-dependent numeric standards for cadmium were assigned to Upper Arkansas River segments 1a, 2b, 2c, 3, 4a, 5, 7, 11, and 12a. The revised standards are consistent with the CWA § 304(a) criteria recommendations finalized by EPA in 2016. Because they are consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- Additional aquatic life protection standards were assigned to the following segments: Upper Arkansas River segments 14e (full set) and 23 (acute chlorine), and Lower Arkansas River segments 2a (full set), 6a (full set), and 6b (full set). Because they are based on table values previously approved by EPA, and consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- Site-specific revisions to temperature standards were adopted for a number of segments based on a review of multiple lines of evidence including the existing and expected fish community, the existing thermal regime, anthropogenic influences on the thermal regime, and whether such influences are reversible. See Table 2. An acute, seasonal ambient quality-based temperature standard was adopted for Middle Arkansas River segment 6b based on the findings of a UAA submitted by Public Service Company (Public Service Exhibit 3). The Commission concluded that the data submitted by Public Service "demonstrate that natural conditions within the St. Charles River watershed are solely driving elevated daily maximum instream temperatures during the summer months" (Statement of Basis and Purpose). For several additional segments, the assigned temperature standards were modified based on the thermal requirements of the existing and expected fish community. Because they are consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation

Table 2. Site-Specific Revisions to Temperature Standards Regulation #32		
Type of Proposed Revision	**Segments**	**Notes**
Ambient Quality-Based Temperature Standards	Middle Arkansas 6b	32.6 °C (DM) 3/1 - 11/30 WS-II (DM) 12/1 - 2/29
Revisions to Temperature Tiers	Upper Arkansas 5b, 15a Upper Arkansas 14d Upper Arkansas 14f	CS-I to CS-II. WQCD Exhibit 32-3. CS-II to WS-II. WQCD Exhibit 32-2. CS-II to CS-I. WQCD Exhibit 32-2.

- Ambient quality-based numeric standards were deleted and replaced with EPA-approved table value standards for the following segments: Middle Arkansas River segments 4e (acute and chronic selenium) and 18b (acute and chronic selenium) and Fountain Creek segments 2a (chronic selenium and sulfate), and 2b (acute selenium). These revisions are approved, subject to ESA consultation.

With the exception of the TP numeric standard assigned to Upper Arkansas River segment 20b, the Region concludes that the revisions to aquatic life-based numeric standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

Discharger-Specific Variances (Aquatic Life Uses)

A discharger-specific variance (DSV) for acute and chronic selenium was applied to Lower Arkansas River segment 1a (City of Pueblo, expiration 12/31/2028) and a DSV for chronic selenium was applied to Lower Arkansas River segment 1b (City of Las Animas, expiration 12/31/25). Enclosure 3 provides a description of the DSVs and the rationale for EPA's approval action.

Temporary Modifications (Aquatic Life Parameters)

For Middle Arkansas River segment 6b, the temporary modification for the acute (DM) temperature standard was deleted. The temporary modification was no longer appropriate or needed, given that the Commission also adopted a new site-specific acute standard (discussed above).

For Upper Arkansas River segment 8b, the expiration date for the chronic cadmium temporary modification was extended by eighteen months from 12/31/2018 to 6/30/2020. This revision was adequately supported by information submitted by Resurrection Mining Company. The Statement of Basis and Purpose notes that the additional time "allows for collection of additional biological and temperature/water quality data in ponded wetland habitat in Iowa Gulch and several similar reference streams free from the influence of elevated metals concentrations to resolve the uncertainty regarding the resident biota and appropriate standards for this segment. Efforts will specifically target Hyalella Azteca, as lentic habitat waters and emergent vegetation in Iowa Gulch are available; however, this species was not found in previous sampling efforts, and additional data are needed to determine if this species could be expected to be present in Iowa Gulch."

The revisions are consistent with the general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on October 2, 2017. The revisions are approved without condition.

REVISIONS WHERE THE EPA IS TAKING NO ACTION

Upper Arkansas River Segment 20b. EPA is taking no action on the 110 µg/L TP standard that was applied to Upper Arkansas River segment 20b (i.e., the portion of the segment above all point source discharges listed at 32.5(4)). We understand and very much appreciate that the Division is now working to develop a WQS proposal to update and apply river and stream interim values for TP to all state waters, as necessary to protect the assigned use classifications (WQCD "10-year roadmap"). The Region will continue to partner and work collaboratively with the WQCD regarding that important project.

ENCLOSURE 2
RATIONALE FOR EPA'S ACTION ON THE REVISIONS TO REGULATION #36
ADOPTED AUGUST 6, 2018

The discussion below summarizes the major changes to Classifications and Numeric Standards for the Rio Grande Basin (Regulation #36) and the rationale for the EPA's approval action.

Revisions were adopted to the water quality standards assigned to individual segments. The revisions included updates to Regulation #36 to make it consistent with the *Basic Standards and Methodologies for Surface Water* (Regulation #31), as revised by the Commission in 2016. For example, the Commission adopted revisions to:

- antidegradation designations,
- water supply classifications and health-based standards,
- temporary modifications (human health parameters),
- agriculture classifications and standards,
- aquatic life classifications,
- aquatic life-based numeric standards, and
- temporary modifications (aquatic life parameters).

In reviewing the changes to Regulation #36, the EPA read and carefully considered the rule changes, the Statement of Basis and Purpose adopted by the Commission, and all documents and information submitted to the Commission during the State's rulemaking process, including the proponent's pre-hearing statements and exhibits, responsive pre-hearing statements and exhibits, rebuttal statements and exhibits, sur-rebuttal statements and exhibits, and public comments.

ANTIDEGRADATION, RECREATION, WATER SUPPLY, HUMAN HEALTH, AND AGRICULTURE STANDARDS

All water quality standards revisions in this category are approved without condition. The basis for the EPA's approval action is that the revisions are consistent with the requirements of the Clean Water Act and the EPA's implementing regulation.

Antidegradation Designations

A reviewable designation was added to Alamosa River segments 9 and 10. A "reviewable" designation means that water quality must be maintained and protected unless it is determined, based on an antidegradation review, that allowing lower water quality is necessary (31.8(3)). These segments were previously Use Protected (i.e., a higher level of antidegradation protection was assigned). The revisions are consistent with Colorado's antidegradation rule at 31.8 of the *Basic Standards and Methodologies for Surface Waters* (previously approved by the EPA) and the EPA's water quality standards regulation at 40 CFR § 131.12.

Water Supply Use Classifications and Human Health-Based Standards

Changes to water supply use classifications and human health-based standards included the following:

- Rio Grande segments 12, 20a, 23b, and 26, and Alamosa River segments 9, 10, 12, and 18: Water supply use classifications and the associated (EPA approved) numeric table value standards were assigned. The new water supply standards will enhance source water protection efforts in these watersheds.

- The water supply use classification was removed from Closed Basin-San Luis Valley River Basin segment 6 (WQCD proposal) based on evidence that water supply uses currently do not exist and are not expected in the future. The Region concludes that the documentation that was developed (WQCD Exhibit 36-2) appropriately justifies removal of the water supply use classification (i.e., based on consideration of the use and value of these segments for water supply uses). Accordingly, the Region finds that the revisions are consistent with 40 CFR § 131.10(a) and § 131.10(k)(3).

- Numeric water supply-based (and EPA approved) table value standards for cadmium, lead and nickel were applied to various segments as necessary to assure that a full set of numeric standards is in place for protection of the water supply use classification.

- Numeric water supply-based (and EPA approved) table value standards for manganese were applied to Alamosa River segment 18.

- In support of the CWA § 101(a)(2) goal and to assure protection of human health, EPA-approved numeric table value standards (water + fish ingestion) were applied to the following segments with a Class 2 aquatic life use classification: Closed Basin-San Luis Valley River Basin segments 13 (portions of Saguache, Russell, Cottonwood Creeks) and 18 (lakes and reservoirs within the Closed Basin, excluding segments 16, 17, 19, and 20). In addition, the "fish ingestion" human health-based standards were removed from Rio Grande segment 18 (certain wetlands that are tributary to the Rio Grande) because they were originally adopted in error.

The Region concludes that all revisions to water supply use classifications and health-based standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

Temporary Modifications (Human Health Uses)

A new water supply-based arsenic temporary modification was applied to Rio Grande segment 12 and Alamosa River segment 18 (expiration 12/31/2021), based on a demonstration that the factual situation satisfies all eligibility requirements. In addition, a water supply-based arsenic temporary modification was deleted from Alamosa River segment 20. The revisions are consistent with the (EPA-approved) general policy in *Basic Standards and Methodologies for Surface Waters* (Regulation #31, Section 31.7(3)). The EPA's regulation at 40 CFR § 131.13 provides that such general policies may be adopted at State discretion, subject to the EPA's review and approval. Colorado's general policy has been approved by the EPA on multiple occasions, and most recently on October 2, 2017.

Agriculture Numeric Standards

A molybdenum standard of 150 µg/L was applied to segments with an agriculture use classification where livestock or irrigated forage are present or expected to be present. This numeric standard is consistent with the numeric standards applied in the South Platte River basin (2015), San Juan River basin (2017), and Gunnison River basin (2017). EPA approved those revisions with letters dated September 30, 2016, and October 12, 2017, respectively, based on the evidence that this numeric standard is protective of livestock watering uses, and consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

The Region concludes that all revisions to agriculture use classifications and standards are consistent with the EPA's water quality standards regulation at 40 CFR §§ 131.10 and 131.11.

AQUATIC LIFE PROTECTION STANDARDS

Changes to numeric standards for the protection of aquatic life classifications included the following:

Aquatic Life Classifications

Changes to aquatic life use classifications included the following:

- The portion of San Francisco Creek extending from the confluence with Spring Branch to the confluence with the Rio Grande was moved to Rio Grande segment 11 and an Aquatic Life Cold 1 use classification was assigned. A full set of aquatic life standards was also assigned, based on a proposal submitted by the WQCD. Previously, this portion of San Francisco Creek was included in Rio Grande segment 15, lacked an aquatic life use classification. According to the Division's rebuttal statement (p. 9, Table 4) San Francisco Creek supports Rio Grande cutthroat trout and other salmonid species, based on the results of seven fish population surveys conducted during the period 1977-2013. In addition, the Division's UAA (WQCD Exhibit 36-3, Table 7) reports that two macroinvertebrate samples have been collected in San Francisco Creek (2013 and 2017), and both attained the MMI.

- The Aquatic Life Cold 1 use classification was downgraded to Aquatic Life Cold 2 for Alamosa River segment 20 based on a proposal submitted by the WQCD. This segment includes all tributaries and wetlands to the Alamosa River, La Jara Creek, or the Conejos River within the boundaries of the Rio Grande National Forest, excluding the specific segments 1 through 7, 11a, 11b, 13, 14a, 14b, 17a, 17b, and 18. The Division's UAA (WQCD Exhibit 36-4) states that "fisheries data from tributaries in this segment reported the absence of fish during multiple sampling events" and "little to no flow is visible in aerial imagery, suggesting these tributaries are ephemeral and have flow only during snowmelt and storm events, which might explain the lack of an established aquatic life community." The UAA concludes that the attainable aquatic life community is "more accurately represented as a Cold Class 2 Aquatic Life use." Based on the evidence presented in the UAA, EPA concludes that the change in use classification is consistent with 40 CFR § 131.10(g) and (j)(2).

The Region concludes that all changes to aquatic life classifications are consistent with the EPA's water quality standards regulation at 40 CFR § 131.10. The revisions are approved, subject to ESA consultation.

Numeric Standards for the Protection of Aquatic Life Classifications

Changes to numeric standards for the protection of aquatic life classifications included the following:

- The acute and chronic numeric temperature values at 36.6(3) were revised consistent with the changes to Regulation 31, Table I, adopted in 2016 and approved by EPA's October 2, 2017 action letter. Because they are consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- Updated hardness-dependent numeric standards for cadmium were assigned to Rio Grande segments 4b, 5a, and 6, Alamosa River segments 3a, 3c, and 20, and Closed Basin-San Luis Valley River Basin segments 8 and 12a. The revised standards are consistent with the CWA § 304(a) criteria

recommendations finalized by EPA in 2016. Because they are consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- For certain segments, revisions to temperature standards were adopted, as summarized in Table 3. A site-specific chronic (MWAT) numeric standard for the summer season (April through October) was applied to Closed Basin segment 12b based on a use attainability analysis developed by the Division (WQCD Exhibit 36-5). EPA agrees with the conclusion presented in the UAA that "observed summer water temperatures are the result of the natural thermal gradient and no reversible anthropogenic sources affecting thermal loading have been identified…the ambient temperature patterns represent the highest degree of protection attainable." For several additional segments, the assigned temperature standards were modified (from CS-I to CS-II) based on the thermal requirements of the existing and expected fish community. These revisions are approved, subject to ESA consultation.

Table 3. Site-Specific Revisions to Temperature Standards Regulation #36

Type of Proposed Revision	Segments	Notes
Ambient Quality-Based Temperature Standards	Closed Basin 12b	18.6 °C (MWAT) 4/1 - 10/31. WQCD Exhibit 36-5.
Revisions to Temperature Tiers	Rio Grande 5b, 9b Alamosa 20 Closed Basin 12b	CS-I to CS-II. WQCD Exhibit 36-3. CS-I to CS-II. WQCD Exhibit 36-3. CS-I to CS-II. WQCD Exhibit 36-5.

- Additional aquatic life protection standards were assigned to the following segments: Rio Grande segments 7 (acute chlorine), and 20b (acute chlorine, acute and chronic manganese), and Alamosa River segment 16 (acute and chronic manganese). Because they are based on table values previously approved by EPA, and consistent with 40 C.F.R. § 131.11, these revisions are approved, subject to ESA consultation.

- For Rio Grande segments 4a and 7, changes were made to the ambient quality-based numeric standards that were first adopted in March of 2014. Such revisions are responsive to EPA's September 29, 2014 approval letter, which emphasized that "the adopted numeric standards will need to be reviewed and revised, as necessary, as a result of the State's triennial review process (e.g., as new information becomes available)." The 2018 updates were supported by an expanded analysis that included additional ambient monitoring data. These revisions are approved without condition.

The Region concludes that the revisions to aquatic life-based numeric standards are consistent with the EPA's water quality standards regulation at 40 CFR § 131.11.

ENCLOSURE 3
RATIONALE FOR EPA'S ACTION ON DISCHARGER-SPECIFIC VARIANCES
ADOPTED AUGUST 6, 2018

This enclosure discusses the discharger-specific variances (DSVs) adopted by the Commission on August 6, 2018 and the rationale for the EPA's approval action.

Adoption of DSVs is authorized by Colorado's *Basic Standards and Methodologies for Surface Waters* (Regulation 31, section 31.7(4)). The DSV authorizing provision was adopted by the Commission on August 9, 2010 with a delayed effective date of January 1, 2013, later changed to October 1, 2013, and approved by the EPA on June 5, 2014.

In August of 2015, more explicit authorizing language and additional requirements applicable to state-adopted DSVs were added to EPA's water quality standards (WQS) regulation (40 C.F.R. § 131.14). EPA's rule defines a "water quality standards variance" as a "time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflects the highest attainable condition during the term of the WQS variance" (40 C.F.R. §131.3(o)).

Pursuant to the Clean Water Act (CWA) and EPA's rule (40 C.F.R. § 131.21(c)), State-adopted WQS variances must be approved by the EPA as consistent with 40 CFR § 131.14 before the variance can become the applicable standard for purposes of National Pollutant Discharge Elimination System (NPDES) permit requirements under CWA § 402.

On August 6, 2018, the Commission adopted DSVs for two NPDES discharges:

- City of Pueblo: DSVs for acute selenium, chronic selenium, and chronic sulfate were applied to Lower Arkansas River segment 1a.
- City of Las Animas. A DSV for chronic selenium was applied to Lower Arkansas River segment 1b.

Regarding the DSVs identified above and discussed in detail below, the EPA reviewed all documents and information submitted by the parties and the public during Colorado's rulemaking process, including but not limited to the proponent's pre-hearing statements and exhibits, responsive pre-hearing statements and exhibits, rebuttal statements and exhibits, sur-rebuttal statements and exhibits, and public comments. The EPA has also reviewed the final revised Regulation #32 and accompanying Statement of Basis and Purpose adopted by the Commission. The EPA has also considered applicable sections of the WQS regulation (40 C.F.R. Part 131) and EPA guidance materials.

LOWER ARKANSAS RIVER SEGMENT 1A (CITY OF PUEBLO)

Summary of the Water Quality Non-Compliance Problem

The City of Pueblo's Water Reclamation Facility discharges to Lower Arkansas River segment 1a. Although ambient quality-based standards for selenium (19.1 µg/L acute, 14.1 µg/L chronic) and sulfate (329 µg/L chronic) have been adopted and approved by EPA for this segment, the City of Pueblo is unable to comply with the water quality-based effluent limits (WQBELs) in its discharge permit (CO0026646) because of groundwater with high concentrations of selenium and sulfate that periodically enters the City's collection system, i.e., when the groundwater table rises.

As stated in the proponent's pre-hearing statement (PPHS) (page 1) submitted by the City:

> "Pueblo has been assessing and addressing selenium and sulfate issues in the Arkansas River Basin for over 20 years. The sources of selenium and sulfate are natural. The Pierre Shale formation that underlies the city contains large amounts of selenium and sulfate. This geology causes high selenium and sulfate concentrations in the groundwater that enters the Pueblo sewer collection system through inflow and infiltration ("I&I"). The Pueblo WRF [Water Reclamation Facility] removes approximately half of the selenium from the influent, providing an environmental benefit. Despite this, effluent selenium and sulfate concentrations exceed the ambient-based site-specific standards during wet conditions when I&I increases. Treatment for both parameters is technically challenging, expensive, and carries unacceptable environmental consequences. Pueblo is a disadvantaged community, with significantly lower income, higher unemployment, and higher poverty rates than any other large city in Colorado. Pueblo also serves a large community through an aging sewer collection system that needs significant investment in repair and replacement. And like many communities in Colorado, Pueblo is also planning to meet multiple regulatory challenges in the future, particularly nutrients. As a result, the cost of removing selenium and sulfate would cause especially harsh, substantial, and widespread social and economic impacts in the Pueblo community." (PPHS, Page 1).

DSV Requirements

Pursuant to the DSV at 32.6(6)(c), the City of Pueblo "will be required to spend $10 million to implement a comprehensive source control, sampling, analysis, and optimization adaptive management program to reduce selenium and sulfate concentrations in the effluent as much as feasible and ensure that the discharge does not contribute to any lowering of the currently attained ambient water quality. The adaptive management program will include the following elements, in order of priority:

- Lining up to 175,000 ft^2 in the sewer collection system in Basins 2 and 3.
- Sealing up to 400 manholes in Basins 2 and 3.
- The amount of sewer lining and manhole sealing may be reduced by:
  - Repair of service taps in poor condition;
  - Repair of service lines in poor condition; or
  - Additional effort where epoxy sealing of manholes is insufficient to control I & I.
- A comprehensive long-term sampling and analysis program to identify source control projects and evaluate the effectiveness of implemented controls.
- Investigation of the contribution from sump pumps.
- Pilot testing to determine the feasibility of treatment optimization to reduce selenium, and implementation of feasible treatment optimization measures."

Rationale for Approval

Based on review of the adopted DSV requirements, accompanying Statement of Basis and Purpose, and the supporting analysis and information submitted to the Commission, EPA finds that the City of Pueblo DSVs for acute selenium, chronic selenium, and chronic sulfate are consistent with the requirements of EPA's WQS regulation (40 C.F.R. § 131.14). The rationale for the EPA's approval action is provided below for each EPA requirement.

1. *The WQS variance only applies to the permittee(s) specified in the variance (40 C.F.R. § 131.14(a)(1)).*

   Pursuant to 32.6(6)(c), the variance applies only to a single permittee specified in the variance (City of Pueblo, James R. DiIorio Water Reclamation Facility, Colorado discharge permit CO0026646).

2. *The state retains the underlying designated use and criterion. All other applicable WQS not specifically addressed by the WQS variance remain applicable (40 C.F.R. § 131.14(a)(2)).*

   For Lower Arkansas River segment 1a, the water supply and aquatic life warm 2 use classifications remain designated and were not modified. In addition, the underlying numeric standards for chronic sulfate (329 mg/L), acute selenium (19.1 µg/L), and chronic selenium (14.1 µg/L) continue to apply to the segment for purposes of CWA § 303(d) impairment decisions. For example, 32.6(6)(b) provides that the underlying numeric standards assigned to the segment "will be used for assessing attainment for the waterbody." Because the DSVs are specific to chronic sulfate, acute selenium, and chronic selenium, all other WQS requirements assigned to the segment remain applicable for all CWA purposes.

3. *Will be the applicable WQS for purposes of developing National Pollutant Discharge Elimination System (NPDES) permit limits and requirements only for the permittee specified in the WQS variance. May be used when issuing CWA section 401 certifications (40 C.F.R. § 131.14(a)(3)).*

   Section 32.6(6)(b) provides that permit effluent limitations shall be established consistent with the requirements of the DSVs for the named discharger (i.e., the adaptive management program elements including sewer lining, etc.). Because the City of Pueblo is the only discharger named by the DSV, the EPA concludes that the DSVs are the applicable WQS only for the City of Pueblo and only for NPDES purposes (i.e., under Colorado discharge permit CO0026646). The EPA notes that permitting authority for this discharge has been delegated to the state, and thus it is unlikely there will be a need for Colorado to use the DSV as the basis for issuing CWA § 401 certifications of federally-issued permits.

4. *The designated use and criterion addressed by the WQS variance cannot be achieved by implementing technology-based effluent limits (40 C.F.R. § 131.14(a)(4)).*

   The EPA finds that the pre-hearing statement and alternatives analysis submitted by the City of Pueblo successfully demonstrates that the underlying use and criteria cannot be achieved by implementing technology-based effluent limits. See Pueblo Exhibit 4 (page 29, Table 10).

5. *The WQS variance must identify the pollutant(s) or water quality parameter(s), the water body segment, and the discharger or permittee subject to the WQS variance (40 C.F.R. § 131.14(b)(1)(i)).*

   The EPA finds that the DSVs at 32.6(6)(c) identify the pollutants (chronic sulfate, acute selenium, and chronic selenium), the water body segment (Lower Arkansas River segment 1a) and the discharger or permittee subject to the variance (the City of Pueblo).

6. *Will not result in any lowering of currently attained ambient water quality, unless the WQS variance will be used for restoration activities (40 C.F.R. § 131.14(b)(1)(ii)).*

   The DSVs at 32.6(6)(c) require implementation of a comprehensive adaptive management program to reduce selenium and sulfate concentrations in the effluent as much as feasible and to ensure that the discharge does not contribute to any lowering of the currently attained ambient water quality. In addition, as noted in the Statement of Basis and Purpose, Colorado rule 31.9(5) "requires initial effluent limits to be developed and implemented at the time of permitting that at a minimum represent the level currently achieved." Accordingly, the EPA finds that the adopted DSVs will not result in any lowering of currently attained ambient water quality.

7. *The WQS variance includes a highest attainable condition specified as a quantifiable expression of the interim effluent condition that reflects the greatest pollutant reduction achievable (40 C.F.R. § 131.14(b)(1)(ii)(A)(2)).*

   The DSVs at 32.6(6)(c) require implementation of a comprehensive adaptive management program "to reduce selenium and sulfate concentrations in the effluent as much as feasible." As also noted above under item 3, Section 32.6(6)(b) requires that the permit contain conditions/limitations consistent with (but not more stringent than) the adaptive management program elements. The alternatives analysis demonstrates that the specific elements included in the adaptive management plan provide the greatest pollution reduction feasible. These include "quantifiable expressions" addressing both cost ($10 million) and the control technologies to be implemented (e.g., lining of 175,000 ft^2 of sewer, sealing 400 manholes). The EPA concludes that the provisions of the DSV are consistent with the requirement to include in the DSVs a "highest attainable condition…that reflects the greatest pollutant reduction achievable."

8. *A provision specifying that the highest attainable condition shall be either the highest attainable condition identified at the time of the adoption, or any higher attainable condition later identified during any reevaluation, whichever is more stringent (40 C.F.R. § 131.14(b)(1)(iii)).*

   The SBP explains that implementation of the DSV is to be based on the alternative effluent limit (AEL) identified at the time of the adoption of the variance, or a modified highest attainable condition adopted by the Commission as a result of any future re-evaluation rulemaking hearing.

9. *The term of the WQS variance is only as long as necessary to achieve the highest attainable condition and consistent with the documentation submitted by the state to justify the term of the WQS variance (40 C.F.R. § 131.14(b)(1)(iv)).*

   The DSVs expiration dates are December 31, 2028 (i.e., a 10-year term). The information supporting this expiration date is included in Pueblo Exhibit 9 (Sewer Lining and Groundwater Monitoring Status Update) and the EPA finds that the expiration date is consistent with the activities and schedule discussed in Pueblo Exhibit 5 (Pollutant Minimization Program). Generally, the adaptive management program will be a multiple-year effort that will include monitoring during wet weather, analysis of the data to identify problem locations in the collection system with the highest selenium and sulfate concentrations, and then implementation of sewer lining and manhole sealing at targeted locations. The EPA agrees that because

decisions will be based on monitoring results, it is important for the schedule to include sufficient time for those monitoring activities and to analyze and react to the monitoring results. The EPA concludes that the term of the DSV is appropriate and consistent with the requirement at 40 C.F.R. § 131.14(b)(1)(iv).

10. *The frequency of reevaluation (at least once every 5 years) and how the state plans to obtain public input on the reevaluation (40 C.F.R. § 131.14(b)(1)(v)).*

The Statement of Basis and Purpose adopted by the Commission explains that it will conduct a re-evaluation of the DSVs in December 2020, December 2023, and December 2026. The public will have an opportunity to provide input during each of these Commission meetings. Further, the Statement of Basis and Purpose explains that:

- At these periodic reviews, the Commission will determine whether the requirements of the DSVs continue to be the highest attainable condition.
- In 2020, the Commission will review Pueblo's progress implementing the pollutant minimization plan and any new data collected since the DSV was adopted.
- In 2023, Pueblo will provide an updated economic feasibility analysis and an updated alternatives analysis, utilizing the results of pilot studies and review of any advancements in the state of selenium treatment technologies.
- The plan for the 2026 re-evaluation will be determined during the 2023 rulemaking hearing.

11. *A provision specifying that if the state does not complete a reevaluation at the specified frequency or does not submit to EPA the results of a reevaluation within 30 days of completion of the reevaluation, the underlying designated use and associated criterion, rather than the WQS variance, will be the applicable water quality standard for CWA purposes until such time the state completes and submits the reevaluation to EPA (40 C.F.R. § 131.14(b)(1)(vi)).*

The Colorado rule at 32.6(6)(b) establishes that with respect to any DSV longer than five years in duration "the Commission will submit the results of its re-evaluation to EPA within 30 days of the date the Commission completes its re-evaluation. In addition, the Colorado rule incorporates verbatim the federal requirement (40 C.F.R. 131.14(b)(1)(v)-(vi)) that "the DSV will no longer be the applicable water quality standard for purposes of the Clean Water Act if the Commission does not conduct a re-evaluation consistent with the specified frequency or if the Commission does not submit the results within 30 days of completion of the re-evaluation process." Accordingly, EPA finds that the City of Pueblo DSVs, and Colorado's general policy at 32.6(6)(b) are consistent with the EPA requirement at 40 C.F.R. § 131.14(b)(1)(vi).

12. *For a WQS variance to a CWA section 101(a)(2) use, a demonstration that attaining the underlying designated use is not feasible throughout the term of the WQS variance because of at least one of the factors listed in §131.10(g) or because of the restoration-related factor listed in §131.14(b)(2)(i)(A)(2). (40 C.F.R. § 131.14(b)(2)(i)(A)).*

For a WQS variance to a non-CWA section 101(a)(2) use, documentation justifying how consideration of the use and value of the water for the uses listed at § 131.10(a) appropriately supports the WQS variance and term. A demonstration consistent with paragraph (b)(2)(i)(A) of this section may be used to satisfy this requirement. (40 C.F.R. § 131.14(b)(2)(B)).

The City's March 14, 2018 PPHS concludes that attaining permit limits derived from the selenium and sulfate ambient criteria is technologically, economically, and environmentally infeasible. A key facet of the City's analysis is its demonstration that attaining effluent limits derived from the underlying acute and chronic selenium standards and the chronic sulfate standard (water quality-based effluent limits or WQBELs) would cause substantial and widespread social and economic consequences (40 CFR § 131.10(g)(6)). See the PPHS, pages 15-19, Pueblo Exhibit 4 (alternatives analysis), Pueblo Exhibit 7 (Asset Management Plan), Pueblo Exhibit 14 (Wastewater Utility Rate and Affordability Study), and Pueblo Exhibit 15 (Economic Feasibility Analysis). The economic analyses completed by the City were in accordance with EPA's 1995 guidance.[2]

The EPA finds that these analyses successfully demonstrate that the pollution control alternatives available to the City for complying with WQBELs are more expensive than what the city can afford, would cause substantial and widespread social and economic impact, and are not economically feasible within the meaning of 40 CFR § 131.10(g)(6). Although the DSV for sulfate is a variance to a non-CWA section 101(a)(2) use (i.e., water supply), the EPA finds that the solutions to the sulfate and selenium problems are inextricably linked, and that for sulfate the demonstration pursuant to 40 C.F.R. § 131.14(b)(2)(i)(A) more than satisfies the requirement for non-CWA § 101(a)(2) uses at 40 C.F.R. § 131.14(b)(2)(B).

13. *Meets public participation requirements at 40 C.F.R. § 131.20(b) (40 C.F.R. § 131.14)).*

EPA's regulation at 40 CFR § 131.20(b) requires that States are to hold one or more public hearings when revising WQS, in accordance with provisions of State law and EPA's public participation regulation (40 CFR Part 25), and that the WQS proposal and supporting analyses are to be made available to the public prior to the hearing.

The EPA finds that the Pueblo DSVs are duly adopted revisions to Colorado WQS, as certified by the Office of the Attorney General (Opinion of the Attorney General dated August 22, 2018). Further, the rulemaking notice and proposal (February 8, 2018) and supporting analyses (March 14, 2018) were made available on the Commission's website more than 60 days prior to the rulemaking hearing on June 11, 2018. The opportunity to submit written comments was described in the February 8, 2018 rulemaking proposal and public notice, i.e., "the Commission encourages input from non-parties, either orally at the hearing, or in writing prior to the hearing." Accordingly, EPA finds that Colorado's rulemaking process was consistent with the public participation requirements at 40 CFR § 131.20(b).

The EPA concludes that the City of Pueblo DSVs for acute selenium, chronic selenium, and chronic sulfate (Lower Arkansas River segment 1a) are consistent with 40 C.F.R. § 131.14. Accordingly, the revisions are approved without condition.

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[2] EPA's 1995 Interim Economic Guidance for Water Quality Standards, U.S. EPA, March 1995, EPA-823-B-95-002 https://www.epa.gov/wqs-tech/economic-guidance-water-quality-standards

LOWER ARKANSAS RIVER SEGMENT 1B (CITY OF LAS ANIMAS)

Summary of the Water Quality Non-Compliance Problem

The City of Las Animas wastewater treatment facility (WWTF) and water treatment plant (WTP) both discharge to segment 1b of the Lower Arkansas River; the combined discharge is authorized by Colorado Discharge Permit System (CDPS) Permit CO0040690. Because upstream selenium concentrations exceed the 4.6 µg/L chronic standard for dissolved selenium (i.e., there is no assimilative capacity), the chronic water quality-based effluent limit (WQBEL) in the permit equals the 4.6 µg/L numeric standard assigned to segment 1b. The City has exceeded its 4.6 µg/L chronic WQBEL "approximately 90% of the time" (Las Animas Exhibit A, page 30). The supporting analyses document the major source of selenium is the reject water from the City's reverse osmosis WTP. As discussed in the Las Animas pre-hearing statement (Exhibit A, pp. 27-34, Table 7), the typical/median selenium concentration discharged by the WWTP has been less than the detection level (0.80 µg/L) with a maximum observed concentration of 1.3 µg/L. By contrast, the typical/median selenium concentration discharged by the WTP has been 42 µg/L, with a maximum of 74 µg/L. The typical/median selenium concentration in the combined discharge (WWTP + WTP) has been 9 µg/L.

Infiltration/inflow to the City's wastewater collection system is no longer an important source of selenium to the WWTP (e.g., this includes the summer season, when ground water levels rise in response to upgradient agricultural irrigation). Infrastructure rehabilitation projects completed in 2009, 2012, and 2014 "have resulted in a marked reduction in seasonal infiltration of ground water within the City's service area" (Las Animas PPHS).

DSV Requirements

Pursuant to the DSV at 32.6(6)(d), the City of Las Animas is required to "implement a pollutant minimization plan, which is expected to result in effluent concentrations between 0.8 – 28.4 µg/L. The following measures are required during the term of the variance to reduce selenium concentrations as much as feasible and to ensure the discharge does not contribute to any lowering of ambient in-stream water quality:

- Monitor selenium concentrations in each municipal water well and use the wells with the lowest selenium concentrations to meet water demand to the maximum extent feasible.
- Initiate a water conservation program.
- Locate and repair sources of water loss in the water distribution system.
- Maintain the ongoing sanitary sewer collection system replacement program to address groundwater infiltration.
- Complete a wetland treatment pilot study by 12/31/2025, if compliance with water quality based effluent limits based upon the underlying standards remains infeasible after implementing the above measures."

Rationale for Approval

Based on review of the adopted DSV requirements, accompanying Statement of Basis and Purpose (or SBP), and the supporting analysis and information submitted to the Commission, EPA finds that the City of Las Animas DSV for chronic selenium is consistent with the requirements of EPA's Water Quality Standards (WQS) regulation (40 C.F.R. § 131.14). The rationale for the EPA's approval action is provided below for each regulatory requirement.

1. *The WQS variance only applies to the permittee(s) specified in the variance (40 C.F.R. § 131.14(a)(1)).*

   Pursuant to 32.6(6)(d), the variance applies only to a single permittee specified in the variance (City of Las Animas, Colorado discharge permit CO0040690).

2. *The state retains the underlying designated use and criterion. All other applicable WQS not specifically addressed by the WQS variance remain applicable (40 C.F.R. § 131.14(a)(2)).*

   For Lower Arkansas River segment 1b, the aquatic life warm 2 use classification was not removed or otherwise modified. In addition, the underlying numeric standard for chronic selenium (4.6 µg/L) continues to apply to the segment for purposes of CWA Section 303(d) impairment decisions. For example, 32.6(6)(b) provides that the underlying chronic numeric standard assigned to the segment "will be used for assessing attainment for the waterbody." Because a DSV was adopted only for chronic selenium, all other WQS requirements assigned to the segment remain applicable for all CWA purposes.

3. *Will be the applicable WQS for purposes of developing National Pollutant Discharge Elimination System (NPDES) permit limits and requirements only for the permittee specified in the WQS variance. May be used when issuing CWA section 401 certifications (40 C.F.R. § 131.14(a)(3)).*

   Section 32.6(6)(b) provides that permit effluent limitations shall be established consistent with the requirements of the DSV for the named discharger. Because the City of Las Animas is the only discharger named by the DSV, the EPA concludes that the DSV is the applicable WQS only for the City of Las Animas and only for NPDES purposes (i.e., under Colorado discharge permit CO0040690). The EPA notes that the authority to issue a CWA § 402 permit to this discharge has been delegated to the state, and thus it is unlikely there will be a need for Colorado to use the DSV as the basis for issuing CWA § 401 certifications of federally-issued permits. However, should the need arise, the EPA concludes that the DSV would be the applicable standard only with respect to the City of Las Animas discharge.

4. *The designated use and criterion addressed by the WQS variance cannot be achieved by implementing technology-based effluent limits (40 C.F.R. § 131.14(a)(4)).*

   The EPA finds that the pre-hearing statement and alternatives analysis submitted by the City of Las Animas successfully demonstrates that the underlying use and criteria cannot be achieved by implementing technology-based effluent limits. See Las Animas PPHS, Exhibit A.

5. *The WQS variance must identify the pollutant(s) or water quality parameter(s), the water body segment, and the discharger or permittee subject to the WQS variance (40 C.F.R. § 131.14(b)(1)(i)).*

   The DSV at 32.6(6)(d) identifies the pollutant (chronic selenium), the water body segment (Lower Arkansas River segment 1b) and the discharger or permittee subject to the variance (the City of Las Animas).

6. *Will not result in any lowering of currently attained ambient water quality, unless the WQS variance will be used for restoration activities (40 C.F.R. § 131.14(b)(1)(ii)).*

   The DSV at 32.6(6)(d) specifies that Las Animas is required to reduce selenium concentrations as much as feasible "to ensure that the discharge does not contribute to any lowering of ambient in-stream water quality." Water quality improvement is to be achieved via implementation of a pollutant minimization plan (e.g., Las Animas must utilize the source water wells with the lowest selenium concentrations). In addition, as noted in the Statement of Basis and Purpose (SBP), Colorado rule 31.9(5) "requires initial effluent limits to be developed and implemented at the time of permitting that at a minimum represent the level currently achieved." Accordingly, the EPA finds that the adopted DSV will not result in any lowering of currently attained ambient water quality.

7. *The WQS variance includes a highest attainable condition specified as a quantifiable expression of the interim effluent condition that reflects the greatest pollutant reduction achievable (40 C.F.R. § 131.14(b)(1)(ii)(A)(2)).*

   The Las Animas DSV will protect the highest attainable condition by requiring "implementation of a pollutant minimization plan providing for source well optimization, conserving water, repairing losses from the water distribution system and reducing groundwater infiltration to the collection system" (SBP). The alternatives analysis developed by Las Animas shows that various other control alternatives were evaluated and demonstrated to be too costly or otherwise infeasible, and that the specific elements included in the pollutant minimization plan will provide for the greatest pollution reduction feasible (Las Animas PPHS, Exhibit A). In adopting the DSV, the Commission acknowledged that there is "significant uncertainty" regarding the degree of water quality improvement that can be achieved via implementation of such measures (SBP). This is consistent with the DSV at 32.6(6)(d), which states that the effluent selenium concentrations are expected to fall within a range from 0.8 to 28.4 µg/L. Importantly, the Statement of Basis and Purpose also describes the Commission's expectation that "by implementing the requirements of this variance, Las Animas will be able to quantify the degree of reduction in selenium that is feasible to achieve through source water optimization and other measures, such that a numeric effluent limit can be derived in the future…" The EPA agrees that the provisions of the DSV, including the requirement to implement a pollutant minimization plan, are consistent with the requirement that a WQS variance must protect the "highest attainable condition" and require "the greatest pollutant reduction achievable." In addition, EPA concurs with the Commission's expectation that as additional data become available, it will be possible to develop a more precise estimate of the water quality improvements that are feasible to achieve, and that this will allow for refinement of the highest attainable condition during future reevaluation of the Las Animas DSV.

8. *A provision specifying that the highest attainable condition shall be either the highest attainable condition identified at the time of the adoption, or any higher attainable condition later identified during any reevaluation, whichever is more stringent (40 C.F.R. § 131.14(b)(1)(iii)).*

   The SBP explains that implementation of the DSV is to be based on the alternative effluent limit (AEL) identified at the time of the adoption of the variance, or a modified highest attainable condition adopted by the Commission as a result of a future re-evaluation rulemaking hearing.

9. *The term of the WQS variance is only as long as necessary to achieve the highest attainable condition and consistent with the documentation submitted by the state to justify the term of the WQS variance (40 C.F.R. § 131.14(b)(1)(iv)).*

   The DSV expiration date is December 31, 2025 (i.e., a 7-year term). Based on information submitted by Las Animas, including information submitted with the Las Animas rebuttal statement, the Commission determined that 7 years is a reasonable estimate of the time necessary to implement the required actions, including source well optimization, water conservation, water distribution system improvements, and collection system improvements. The rule at 32.6(6)(c) also requires that if these steps do not result in compliance with the chronic selenium WQBEL, Las Animas is to complete a wetland treatment pilot study by December 31, 2025. The EPA concludes that the term of the DSV is appropriate and consistent with the requirement at 40 C.F.R. § 131.14(b)(1)(iv).

10. *The frequency of reevaluation (at least once every 5 years) and how the state plans to obtain public input on the reevaluation (40 C.F.R. § 131.14(b)(1)(v)).*

    The SBP adopted by the Commission explains that it will conduct a re-evaluation in 2023 as part of the basin-wide rulemaking process. For example, the SBP notes that "the Commission will review Las Animas' progress implementing the pollutant minimization plan and determine whether the requirements of the DSV continue to be the highest attainable condition." As with any Colorado WQS rulemaking process, there will be an opportunity for the public to provide input at the rulemaking hearing, or in writing prior to the hearing.

11. *A provision specifying that if the state does not complete a reevaluation at the specified frequency or does not submit to EPA the results of a reevaluation within 30 days of completion of the reevaluation, the underlying designated use and associated criterion, rather than the WQS variance, will be the applicable water quality standard for CWA purposes until such time the state completes and submits the reevaluation to EPA (40 C.F.R. § 131.14(b)(1)(vi)).*

    The Colorado rule at 32.6(6)(b) establishes that with respect to <u>any</u> DSV longer than five years in duration "the Commission will submit the results of its re-evaluation to EPA within 30 days of the date the Commission completes its re-evaluation. In addition, the Colorado rule incorporates verbatim the federal requirement (40 C.F.R. 131.14(b)(1)(v)-(vi)) that "the DSV will no longer be the applicable water quality standard for purposes of the Clean Water Act if the Commission does not conduct a re-evaluation consistent with the specified frequency or if the Commission does not submit the results within 30 days of completion of the re-evaluation process." Accordingly, EPA finds that the Las Animas DSV, and Colorado's general policy at 32.6(6)(b) are consistent with the EPA requirement at 40 C.F.R. § 131.14(b)(1)(vi).

12. *For a WQS variance to a CWA section 101(a)(2) use, a demonstration that attaining the underlying designated use is not feasible throughout the term of the WQS variance because of at least one of the factors listed in §131.10(g) or because of the restoration-related factor listed in §131.14(b)(2)(i)(A)(2). (40 C.F.R. § 131.14(b)(2)(i)(A)).*

    The City's March 14, 2018 PPHS concludes that attaining a water quality-based effluent limit (WQBEL) for chronic selenium is infeasible. A key facet of the City's analysis is its demonstration that attaining the WQBEL would cause substantial and widespread social and economic consequences (40 C.F.R. § 131.10(g)(6)). See the Las Animas PPHS (particularly Exhibit A). The economic analyses completed by the City were in accordance with EPA's 1995 guidance.[3] The EPA finds that the supporting analysis successfully demonstrates that the pollution control alternatives available to the City for complying with the chronic WQBEL are more expensive than what the city can afford, would cause substantial and widespread social and economic impact, and are not economically feasible within the meaning of 40 C.F.R. § 131.10(g)(6).

13. *Meets public participation requirements at 40 C.F.R. § 131.20(b) (40 C.F.R. § 131.14)).*

    EPA's regulation at 40 C.F.R. § 131.20(b) requires that States are to hold one or more public hearings when revising WQS, in accordance with provisions of State law and EPA's public participation regulation (40 C.F.R. Part 25), and that the WQS proposal and supporting analyses are to be made available to the public prior to the hearing.

    The EPA finds that the Las Animas DSV is a duly adopted revision to Colorado WQS, as certified by the Office of the Attorney General (Opinion of the Attorney General dated August 22, 2018). Further, the rulemaking notice and proposal (February 8, 2018) and supporting analyses (March 14, 2018) were made available on the Commission's website more than 60 days prior to the rulemaking hearing (June 11, 2018). The opportunity to submit written public comments was described in the February 8, 2018 public notice, i.e., "the Commission encourages input from non-parties, either orally at the hearing, or in writing prior to the hearing." Accordingly, EPA finds that Colorado's rulemaking process was consistent with the public participation requirements at 40 C.F.R. § 131.20(b)

The EPA concludes that the City of Las Animas DSV for chronic selenium (Lower Arkansas River segment 1b) is consistent with 40 C.F.R. § 131.14. Accordingly, the revision is approved without condition.

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[3] EPA's 1995 Interim Economic Guidance for Water Quality Standards, U.S. EPA, March 1995, EPA-823-B-95-002 https://www.epa.gov/wqs-tech/economic-guidance-water-quality-standards

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APR 2 3 2018

Ref: 8WP-CWQ

Christine Deveny
Chair, Montana Board of Environmental Review
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Re: EPA Action on Montana's Water Quality Standards Triennial Review

Dear Ms. Deveny:

The U.S. Environmental Protection Agency (EPA) has completed its review of Montana's new and revised water quality standards is approving the water quality standards as described in the enclosure. The Montana Board of Environmental Review adopted these water quality standards on March 31, 2017, and submitted them to the EPA for review with a letter dated June 6, 2017. The submission included: (1) new and revised water quality standards; (2) documentation of the scientific basis of water quality criteria; (3) rulemaking documents including public notices, public comments, and response to comments; (4) transcripts of the public hearings on June 3, 2016 and February 10, 2017; and (5) Special Assistant Attorney General's certification that the water quality standards were duly adopted pursuant to state law. Receipt of the submission on June 13, 2017, initiated the EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA) and the implementing federal water quality standards regulation (40 CFR Part 131).

Clean Water Act Review Requirements

The CWA at Section 303(c)(2), requires states and authorized Indian tribes to submit new or revised water quality standards to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA Section 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the state or authorized tribe and specify the changes needed to meet the requirements. If such changes are not adopted by the state or authorized tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standard pursuant to CWA Section 303(c)(4)(A). The EPA's goal has been, and will continue to be, to work closely with states and authorized tribes throughout the standards revision process so that submitted revisions can be approved by the EPA. Pursuant to the EPA's Alaska Rule (40 CFR § 131.21(c)), new or revised state and authorized tribal standards submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

Today's Action

The water quality standards that the EPA is approving today include:

- New aquatic life criteria for carbaryl and revised aquatic life criteria for cadmium consistent with the EPA's national criteria recommendations published pursuant to CWA Section 304(a);
- New human health criteria for dinitrophenols and over 80 revised human health criteria consistent with the EPA's national criteria recommendations published pursuant to CWA Section 304(a) or a more stringent Maximum Contaminant Level (MCL) established by the EPA under the Safe Drinking Water Act;
- New human health criteria for five pesticides (clothianidin, glufosinate ammonium, saflufenacil, thiamethoxam, and sulfentrazone);
- Over 60 revised human health criteria for which the EPA has no CWA Section 304(a) recommended criteria, primarily pesticides, consistent with the EPA's 2015 updated exposure inputs;
- A compliance schedule authorizing provision consistent with the EPA's revisions to 40 CFR Part 131 in August 2015;
- Revised *E. coli* water quality criteria to include expression as most probable number (mpn); and
- Revised nondegradation provisions for Clark Fork River nutrient criteria.

The rationale for the EPA's action is discussed in detail in the enclosure.

Endangered Species Act Requirements

The EPA's approval of revised aquatic life water quality standards (WQS) is subject to the consultation requirement of Section 7(a)(2) of the Endangered Species Act (ESA). Under Section 7(a)(2) of the ESA, 16 U.S.C. §1536, the EPA has the obligation to insure that its approval of these modifications to Montana's WQS regulation will not jeopardize the continued existence of threatened and endangered species and their critical habitat in Montana. The EPA initiated consultation with the U.S. Fish and Wildlife Service (FWS) regarding the effects of the EPA approving changes to Montana's WQS on July 11, 2017 and March 20, 2018.

The EPA's approval of revisions to Montana's criteria pending completion of consultation under Section 7(a)(2) is fully consistent with Section 7(d) of the ESA because it does not foreclose either the formulation by the FWS or the implementation by the EPA of any alternatives that might be determined in the consultation to be needed to comply with ESA Section 7(a)(2). Proceeding with a CWA section 303(c) approval action prior to the completion of the ESA Section 7 consultation provides a more protective condition for listed species and/or designated critical habitat during the interim period while the EPA is completing the ESA Section 7 consultation requirements on the WQS approval. Under CWA Section 303(c)(4)(B), the EPA has authority to take additional action regarding the revision of water quality standards for Montana if the consultation with the FWS identifies deficiencies in the revised water quality standards requiring remedial action by the EPA, after the EPA has approved the revisions.

Indian Country

The EPA's approval of Montana's submitted WQS does not extend to Indian country as defined in 18 U.S.C. Section 1151. Indian country generally includes lands within the exterior boundaries of the following Indian reservations located within Montana: Crow Indian Reservation, Blackfeet Indian Reservation, Flathead Reservation, Fort Belknap Reservation, Fort Peck Indian Reservation, Rocky

Boy's Reservation, and Northern Cheyenne Indian Reservation; any land held in trust by the United States for an Indian tribe; and any other areas that are "Indian country" within the meaning of 18 U.S.C. Section 1151. Today's action is not intended as an action to approve or disapprove WQS applying to waters within Indian country. The EPA, or eligible Indian tribes, as appropriate, will retain responsibilities under CWA Section 303 in Indian country.

Conclusion

We thank the Department and the Board for your work to protect and improve the waters of Montana. If you have any questions, please call Tonya Fish on my staff at (303) 312-6832.

Sincerely,

Darcy O'Connor,
Assistant Regional Administrator
Office of Water Protection

Enclosure

Rationale for EPA's Action on Montana's Revised Surface Water Quality Standards

Summary

Discussion of the new or revised provisions is organized into the following categories: (1) WQS approved without condition (including new and revised human health criteria, nondegradation provisions); (2) WQS approved subject to ESA consultation (including new and revised aquatic life criteria), and; (3) provisions the EPA is not taking action on today.

WQS Approved Without Condition

Human Health Criteria

The EPA's 2015 Update for Human Health Ambient Water Quality Criteria[1] revised 94 of the EPA's existing National Recommended Water Quality Criteria (NRWQC)[2] published pursuant to CWA Section 304(a) for the protection of human health. The 2015 Update reflects the latest scientific information, including updated exposure inputs for body weight (80 kg), drinking water consumption rate (2.4 L), and fish consumption rate (22 grams per day). Montana revised 76 human health criteria to be consistent with the 2015 NRWQC. For 13 parameters, Montana retained the Maximum Contaminant Level (MCL) established by the EPA under the Safe Drinking Water Act[3] because it was more stringent than the NRWQC. The remaining 5 parameters were either new additions to Circular DEQ-7 or the MCL was revised, but is also more stringent than the NRWQC (see table below). In addition, the state recalculated 66 previously adopted human health criteria for which the EPA has no NRWQC, primarily pesticides, to be consistent with the 2015 exposure inputs.

Parameter	New/ Revised	Adopted Criterion (µg/L unless noted)	Scientific Basis
Dinitrophenols	N	10	NRWQC (2015 update)
Dichlorobenzene, 1,2-	R	changed from 420 to 600	MCL (more stringent than 2015 NRWQC)
Dichloroethane, 1,2-	R	changed from 3.8 to 5	MCL (more stringent than 2015 NRWQC)
Trichloroethane, 1,1,2-	R	changed from 3 to 5	MCL (more stringent than 2015 NRWQC)
Trichlorophenoxy Proprionic Acid, 2 (2,4,5-) [Silvex]	R	changed from 10 to 50	MCL (more stringent than 2015 NRWQC)

Montana also adopted the following new and revised human health criteria based on the EPA's NRWQC, the Maximum Contaminant Level (MCL) established by the EPA under the Safe Drinking Water Act, or calculated a Lifetime Health Advisory (LHA)[4] where no national LHA is available:

[1] See https://www.epa.gov/sites/production/files/2015-10/documents/human-health-2015-update-factsheet.pdf.
[2] https://www.epa.gov/wqc/national-recommended-water-quality-criteria
[3] https://www.epa.gov/sites/production/files/2015-09/documents/dwstandards2012.pdf
[4] Calculations and references in Summary of NewPesticide Calcs.docx submission file dated June 1, 2016.

Parameter	New/ Revised	Adopted Criterion (µg/L unless noted)	Scientific Basis
Zinc	R	changed from 2,000 to 7,400	NRWQC (2002)
Trihalomethanes, total	R	changed from 100 to 80	MCL
Clothianidin	N	650	LHA
Glufosinate ammonium	N	40	LHA
Saflufenacil	N	310	LHA
Sulfentrazone	N	700	LHA
Thiamethoxam	N	80	LHA

The state also made several corrections to human health criteria. The criterion for dioxin was revised to be consistent with Montana's statutory lifetime cancer risk level of 1×10^{-5}. The misplaced decimal was removed to change the criteria for beta emitters and gamma emitters from 0.4 to 4 millrem per year. Footnote 39 was deleted from the human health criteria for Endosulfan, Endosulfan I, and Endosulfan II in Circular DEQ-7 in order to be consistent with the EPA's NRWQC which only applies this footnote to the Endosulfan aquatic life criteria.

The revisions to Circular DEQ-7 described above are incorporated by reference of Circular DEQ-7 in ARM 17.30.619(a).[5] The EPA approves the new and revised human health criteria discussed above because they are scientifically defensible and consistent with the requirements of the CWA and the EPA's implementing regulation at 40 CFR § 131.11.

E. coli Criteria

Montana revised the *E. coli* criteria for Class A, B, C, D, E, F, and I (ARM 17.30.621, 17.30.622, 17.30.623, 17.30.624, 17.30.625, 17.30.626, 17.30.627, 17.30.628, 17.30.629, 17.30.650, 17.30.651, 17.30.652, 17.30.653, 17.30.654, 17.30.655, 17.30.656, and 17.30.657) to include expression as most probable number (mpn). The EPA approves these revisions because the criteria are scientifically defensible and consistent with the requirements of the CWA and the EPA's implementing regulation at 40 CFR § 131.11.

Nondegradation

Montana revised ARM 17.30.715(f) to clarify the antidegradation (called nondegradation in Montana's WQS) significance threshold that applies to nutrients listed in ARM 17.30.631 (nitrogen and phosphorus) for the Clark Fork River.[6]

The state also revised the nondegradation trigger values for nitrate and nitrate plus nitrite to 10 µg/L to correct the accidental deletion of these values in the October 2012 version of Circular DEQ-7. Under ARM 17.30.715(1)(c), "discharges containing toxic parameters, which will not cause changes that equal or exceed the trigger values in Department Circular DEQ-7. Whenever the change exceeds the trigger value, the change is not significant if the resulting concentration outside of a mixing zone designated by

[5] See April 2017 version of Circular DEQ-7 showing all revisions (submission file DEQ-7 Draft 11-17-16.docx).
[6] See the EPA's February 6, 2015 letter from Humberto L. Garcia Jr. to George Mathieus and MDEQ's response letter dated February 12, 2015.

the department does not exceed 15 percent of the lowest applicable standard." The human health criterion for nitrate and nitrate plus nitrite is 10,000 µg/L, therefore a trigger value of 10 µg/L is consistent with the EPA's recommendations regarding significance thresholds.[7]

The EPA approves these changes because they are consistent with the requirements of the CWA and the EPA's implementing regulation at 40 CFR § 131.12.

Compliance Schedule Authorizing Provision

In August 2015, the EPA revised the WQS regulation (40 CFR Part 131).[8] The EPA's final rule requires that if states intend to authorize the use of compliance schedules for water quality-based effluent limits in National Pollutant Discharge Elimination System (NPDES) permits, the state must adopt a permit compliance schedule authorizing provision and submit it to the EPA for review and action under Clean Water Act § 303. Montana adopted a compliance schedule authorizing provision in its Montana Pollutant Discharge Elimination System Permit regulations at ARM 17.30.1350(1) in 1992, but this was never submitted to the EPA for review and action as a WQS. Montana added ARM 17.30.619(f) to specifically incorporate by reference the compliance schedule authorizing provision in ARM 17.30.1350(1), which states, "The permit may, when appropriate, specify a schedule of compliance leading to compliance with the Act and rule adopted thereunder, specifically including any applicable requirements under ARM Title 17, chapter 30, subchapter 12." ARM 17.30.1350(1) in its entirety is included below:

17.30.1350 SCHEDULES OF COMPLIANCE

(1) The permit may, when appropriate, specify a schedule of compliance leading to compliance with the Act and rules adopted thereunder, specifically including any applicable requirements under ARM Title 17, chapter 30, subchapter 12.

(a) Any schedules of compliance under this rule must require compliance as soon as possible, but not later than the applicable statutory deadline under the Act or under the federal Clean Water Act, as codified at 33 USC 1311(b) (2) (A), (C), (D), (E), and (F).

(b) The first MPDES permit issued to a new source or a new discharger must contain a schedule of compliance only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised after commencement of construction but less than three years before commencement of the relevant discharge. For recommencing dischargers, a schedule of compliance must be available only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised less than three years before recommencement of discharge.

(c) Except as provided in (2)(a)(ii), if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule must set forth interim requirements and the dates for their achievement.

(i) The time between interim dates may not exceed one year.

(ii) If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than one year and is not readily divisible into stages for completion, the permit must specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

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[7] https://www.epa.gov/sites/production/files/2014-10/documents/tier2.pdf

[8] See 80 Fed. Reg. 51020 (August 21, 2015). This notice and supplemental materials are available at http://www.epa.gov/wqs-tech/final-rulemaking-update-national-water-quality-standards-regulation.

(d) The permit must be written to require that no later than 14 days following each interim date and the final date of compliance, the permittee shall notify the department in writing of its compliance or noncompliance with the interim or final requirements, or submit progress reports if (c)(ii) is applicable.

The EPA approves this change because it is consistent with the requirements of the CWA and the EPA's implementing regulation at 40 CFR § 131.15.

Non-Substantive Revisions

The EPA considers non-substantive revisions to existing WQS to constitute new or revised WQS that EPA has the authority and duty to approve or disapprove under CWA Section 303(c)(3).[9] The EPA approves these non-substantive edits to ensure public transparency as to which provisions are effective for purposes of the CWA:

- Revisions to update references to the May 2017 version of DEQ-7 in ARM 17.30.502, 17.30.619, 17.30.702;
- Revisions to update references to 40 CFR Part 136 in ARM 17.30.702, 17.30.641, 17.30.646;
- Revisions to update reference to MCA 75-5-103(13) in ARM 17.30.702;
- Revision of % to percent in ARM 17.30.621, 17.30.622, 17.30.650, 17.30.651, 17.30.652, 17.30.653, 17.30.654, 17.30.655, 17.30.656, and 17.30.657;
- Revisions to water-use classifications in ARM 17.30.607, 17.30.608, 17.30.609, 17.30.610, and 17.30.611 to include a more specific endpoint location using latitude and longitude;
- Grammar, wordsmithing, and technical edits to Circular DEQ-7 described in MAR Notice No.17-389;
- Addition of reference to Circular 12 in the introduction to Circular DEQ-7;
- New or revised information sources for aquatic life or human health criteria listed in Circular DEQ-7; and
- Removal of criteria for color, turbidity, pH, and temperature, and footnote 18 from Circular DEQ-7 (redundant of criteria in ARM 17.30 subchapter 6).

WQS Approved Subject to ESA Consultation

Aquatic Life Criteria

Montana revised the following aquatic life criteria in Circular DEQ-7:

[9] See the EPA's October 2012 *What is a New or Revised Water Quality Standard Under CWA 303(c)(3)?-- Frequently Asked Questions* available at http://water.epa.gov/scitech/swguidance/standards/cwa303faq.cfm.

Parameter	New/Revised	Adopted Criterion (µg/L)	Scientific Basis
Carbaryl	N	2.1 (acute and chronic)	NRWQC[10]
Cadmium	R	acute changed from 0.52 to 0.49 chronic changed from 0.097 to 0.25 (at 25 mg/l hardness for both)	NRWQC[11]

The revisions described above are incorporated by reference of Circular DEQ-7 in ARM 17.30.619(a). The new and revised aquatic life criteria are based on the EPA's NRWQC.

In addition, Footnote 7 in Circular DEQ-7 was also revised to correct the units for the total ammonia nitrogen equations to mg/L consistent with the EPA's NRWQC.

The EPA approves the above revisions because the criteria are scientifically defensible and consistent with the requirements of the CWA and the EPA's implementing regulation at 40 CFR § 131.11.

Provisions the EPA is Not Taking Action on Today

There are several provisions that EPA is not acting on today because the EPA determined they are not WQS requiring EPA review and approval under CWA Section 303(c):

- Revisions to update references in ARM 17.24.645, 17.24.646, 17.30.1001, 17.30.1007, 17.30.1322, 17.36.345, 17.55.109, 17.56.507, and 17.56.608;[12]
- Criteria applicable to ground water in Circular DEQ-7 (the EPA's CWA Section 303(c) approval and disapproval authority does not apply to ground water);
- Revisions to footnote 19 in Circular DEQ-7 regarding required reporting values;
- Montana's explanation for not adopting new or revised criteria for parameters for which the EPA has published new or updated Clean Water Act (CWA) section 304(a) criteria recommendations.

There are also several human health criteria that EPA is not acting on today: Chlorsulfuron, Imazapic, Pinoxaden, Dibromoethane, 1,2-, and Nicosulfuron. For these parameters, the current EPA approved criterion continues to apply for Clean Water Act purposes.

New or Updated Section 304(a) Criteria Recommendations

One of the 2015 updates to the EPA's WQS regulation requires states and authorized tribes to provide an explanation if not adopting new or revised criteria for parameters for which the EPA has published new or updated Clean Water Act (CWA) section 304(a) criteria recommendations (40 CFR § 131.20(a)). This change was made to foster meaningful and transparent involvement of the public and intergovernmental coordination with local, state, federal, and tribal entities in light of recent science provided by the EPA through its criteria recommendations. The EPA does not approve or disapprove this explanation. For this triennial review, Montana provided explanations for not adopting the EPA's

[10] https://www.epa.gov/wqc/aquatic-life-criteria-carbaryl
[11] https://www.epa.gov/wqc/aquatic-life-criteria-cadmium
[12] The EPA has not previously acted on these provisions as WQS. Montana's WQS are in ARM Title 17, Chapter 30, Subchapters 5, 6 and 7.

CWA section 304(a) aquatic life criteria recommendations for aluminum, ammonia, selenium, and copper biotic ligand model and human health recommendation for methylmercury.

In 2012, the EPA published updated recreational water quality criteria.[13] Montana did not revise its WQS because Montana's recreational water quality criteria for *E. coli* were already consistent with the 2012 criteria. Magnitude, duration, and frequency are the three components of the 2012 criteria. The magnitude of the bacteria indicators are described by both a geometric mean (GM) and statistical threshold value (STV). Montana's GM for all Classes designated for primary contact recreation is 126 cfu/100 mL or less, and Montana's WQS also contain provisions that are at least as stringent as the EPA's recommended STV of 410 cfu/100 mL (either 64 or 252 cfu/100 mL depending on Class). In addition, Montana's WQS are consistent with the duration and frequency recommendation that the waterbody GM should not be greater than the GM in any 30-day interval and there should not be greater than a ten percent excursion frequency of the STV in the same 30-day interval. When the state assesses waterbodies for attainment of recreational uses, both the GM and the STV would be part of the WQS and therefore both targets would be used to determine whether a waterbody meets the WQS for primary contact recreation.[14]

[13] https://www.epa.gov/sites/production/files/2015-10/documents/rec-factsheet-2012.pdf
[14] See Sections 3.6.4 and 3.6.5 of the Recreation Water Quality Criteria available at https://www.epa.gov/sites/production/files/2015-10/documents/rwqc2012.pdf.

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DEC 2 1 2018

Ref: 8WP-CWQ

Mr. L. David Glatt, Chief
Environmental Health Section
North Dakota Department of Health
918 East Divide Avenue
Bismarck, North Dakota 58501-1947

Re: EPA Action on Revisions to Standards of Water Quality of the State

Dear Mr. Glatt:

The U.S. Environmental Protection Agency (EPA) Region 8 completed its review of North Dakota's new and revised water quality standards. The North Dakota State Health Council (Council) adopted these revisions on May 16, 2018, and submitted them to the EPA for review with a letter dated July 31, 2018, from the North Dakota Department of Health (Department). The submittal package included: (1) a copy of the notice of proposed amendments; (2) the state's response to comments; (3) revised Standards of Quality for Waters of the State (33-16-02.1); and (4) a letter certifying that the amendments were adopted in accordance with state law. Receipt of the submittal package on August 8, 2018 initiated the EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA or the Act) and the implementing federal water quality standards regulation (40 C.F.R. Part 131).

We commend the Department and Council for the improvements to North Dakota's water quality standards. Commendable revisions include the adoption of 87 updated human health criteria for the protection of human health, the adoption of new narrative nutrient criteria, and the adoption of updated aquatic life criteria for cadmium, consistent with the EPA's national criteria recommendations published pursuant to CWA § 304(a).

Clean Water Act Review Requirements

Section 303(c)(2) of the CWA requires states and authorized Indian tribes[1] to submit new or revised water quality standards to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA § 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the state or authorized tribe and specify the changes needed to meet the requirements. If such changes are not adopted by the state or authorized tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standards pursuant to CWA § 303(c)(4)(A). The Region's goal has been, and will continue to be, to work closely with states and authorized tribes throughout the standards revision process so that submitted revisions can be

[1] CWA Section 518(e) specifically authorizes the EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA Section 303. See also 40 CFR Section 131.8.

approved by the EPA. Pursuant to the EPA's Alaska Rule (40 C.F.R. § 131.21(c)), new or revised state and authorized tribal standards submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

Today's Action

Today the EPA is approving most of the revisions to the state water quality standards. The rationale for the EPA's action is discussed in detail in the enclosure. These actions are summarized below:

1) **Water Quality Standards Approved Without Condition**
   - Updated human health criteria to match the 2015 EPA ambient water quality criteria for the protection of human health for all priority pollutants and the five select non-priority pollutants (barium, chlorophenoxy herbicide (2-4-D), Methoxychlor, nitrates and pH);
   - A compliance schedule authorizing provision; and
   - Clarifying additions, edits, and format modifications to existing rule.

2) **Water Quality Standards Approved Subject to Endangered Species Act (ESA) Consultation**
   - Revised acute and chronic aquatic life criteria for cadmium;
   - Corrected acute aquatic life criteria for endrin; and
   - A new narrative criterion for nutrients.

3) **Provisions the EPA is Not Acting on Today**
   - Ground water classifications and standards.

Endangered Species Act Requirements

The EPA's approval of North Dakota's water quality standards is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the ESA. Section 7(a)(2) of the ESA states that "each federal agency… shall… insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical…"16 U.S.C. §1536. The EPA initiated consultation under ESA § 7(a)(2) with the U.S. Fish and Wildlife Service (FWS) on August 31, 2018, regarding our approval of the new or revised water quality standards summarized in category two above and discussed in the enclosure.

The EPA's approval of revisions to North Dakota's criteria pending completion of consultation under Section 7(a)(2) is fully consistent with Section 7(d) of the ESA because it does not foreclose either the formulation by the FWS or the implementation by the EPA of any alternatives that might be determined in the consultation to be needed to comply with ESA § 7(a)(2). Proceeding with a CWA § 303(c) approval action prior to the completion of Section 7 consultation provides a more protective condition for listed species and/or designated critical habitat during the interim period while the EPA is completing the Section 7 consultation requirements on the WQS approval. Under CWA § 303(c)(4)(B), the EPA has authority to take additional action regarding the revision of water quality standards for

North Dakota if the consultation with the FWS identifies deficiencies in the revised water quality standards requiring remedial action by the EPA, after the EPA has approved the revisions.

Indian Country

The water quality standards approvals in today's letter apply only to water bodies in the state of North Dakota, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or authorized Indian tribes as appropriate, will retain responsibilities for water quality standards for waters within Indian country.

Conclusion

The EPA Region 8 thanks the Department and Council for its efforts to improve the water quality standards that protect the waters of North Dakota. The recent revisions clarify North Dakota's existing regulations and improve the state's water quality program. The EPA looks forward to working with the Department to make additional improvements to the state's water quality standards. If you have any questions, please call Holly Wirick on my staff at (303) 312-6238.

Sincerely,

Darcy O'Connor,
Assistant Regional Administrator
Office of Water Protection

Enclosure

Cc: Mr. Peter Wax
Division of Water Quality, North Dakota Department of Health

Rationale for EPA's Action on North Dakota's Revised Surface Water Quality Standards

Today's EPA action letter addresses the revisions to North Dakota's water quality standards (WQS) adopted by the North Dakota State Health Council (Council) on May 16, 2018. This enclosure provides a summary of the revisions and a rationale for the action taken by the EPA. The discussion below covers the following categories of changes made to the state's WQS: (1) revisions that are approved for purposes of CWA § 303(c) without condition, (2) revisions that are approved for purposes of CWA § 303(c), subject to ESA consultation, and (3) provisions that EPA is not acting on today.

1) WATER QUALITY STANDARDS APPROVED WITHOUT CONDITION

Human Health Criteria (§ 33-16-02.1-09 Table 2)

The EPA's 2015 Update for Human Health Ambient Water Quality Criteria[2] revised 94 of the EPA's existing National Recommended Water Quality Criteria (NRWQC)[3] published pursuant to CWA § 304(a), and the maximum contaminant level (MCL)[4] established by the EPA under the Safe Drinking Water Act, for the protection of human health. The 2015 Update reflects the latest scientific information, including updated exposure inputs for body weight (80 kg), drinking water consumption rate (2.4 L), and fish consumption rate (22 grams per day). North Dakota revised 82 of the state's human health criteria[5] to be consistent with the 2015 NRWQC or MCL for the protection of human health for priority pollutants, and revised five human health criteria for the following non-priority pollutants: chlorophenoxy herbicide (2,4-D), methoxychlor, 2-Methyl-4,6-Dinitrophenol, 3-Methyl-4-Chlorophenol, and Bis(2-chloro-1-Methylethyl) ether.

The revisions to North Dakota Admin. Code § 33-16-02.1-09 Table 2, described above are consistent with recently issued changes to the EPA criteria recommendations for those parameters. These revisions improve the public health protections in North Dakota's WQS, and the EPA commends the North Dakota Department of Health (Department) and the Council for making these changes. The EPA approves the new and revised human health criteria because they are scientifically defensible and consistent with the requirements of the CWA and the EPA's implementing regulation at 40 C.F.R. § 131.11. Accordingly, the revisions to Table 2 are approved without condition.

The numeric human health criterion for delta-Hexachlorocyclohexane was deleted from Administrative Code § 33-16-02.1-09(3) Table 2. This parameter is listed as delta-BHC in EPA's NRWQC for priority pollutants, but does not include a numeric criterion. Previously, this pollutant was listed in § 33-16-02.1-09(3) Table 2, but had no criterion. North Dakota adopted revised human health criteria for alpha, beta, and gamma hexachlorocyclohexane. The EPA concludes that because the EPA has no recommended criterion for delta-Hexachlorocyclohexane, and that the state's adoption of the alpha, beta, and gamma

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[2] See https://www.epa.gov/sites/production/files/2015-10/documents/human-health-2015-update-factsheet.pdf.

[3] See https://www.epa.gov/wqc/national-recommended-water-quality-criteria

[4] See https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

[5] See July 31, 2018 version of NDDH Amendments Chapter 33-16-02.1 showing all revisions (submission file Amendments_to_33-16-02.1_NDDH_Strikeout_Version.pdf).

hexachlorocyclohexane protects the human health designated use, this change is consistent with the requirements of the CWA and EPA's implementing regulation at 40 C.F.R. § 131.11, and is approved.

Variances and Compliance Schedules (§ 33-16-02.1-05)

In August 2015, the EPA revised the WQS regulation (40 C.F.R. Part 131).[6] The new EPA WQS rule added 40 C.F.R. § 131.14, which explicitly authorizes the use of WQS variances when the applicable designated uses are not attainable in the near term but may be attainable in the future. The rule also includes additional requirements such as information that a state or authorized tribe must adopt in any WQS variance, including provisions that require protection of the highest attainable condition. States and authorized tribes must submit supporting documentation to the EPA that demonstrates why the WQS variance is needed and justifies the term and interim requirements. WQS variances longer than five years must be reevaluated at least every five years after EPA approval with an opportunity for public input. North Dakota articulates its WQS variance policy at § 33-16-02.1-05. The previous provision was amended to specify that a variance will be granted only after fulfillment of the approved requirements at 40 C.F.R. § 131.14. The revised rule states "A variance will be granted only after fulfillment of the approved requirements at 40 C.F.R. § 131.14, including public participation requirements and environmental protection agency approval." The EPA approves this change which now includes all of the federal requirements at 40 C.F.R. § 131.14.

The EPA's final rule also requires that if states intend to authorize the use of compliance schedules for water quality-based effluent limits in National Pollutant Discharge Elimination System (NPDES) permits, the state must adopt a permit compliance schedule authorizing provision and submit it to the EPA for review and action under CWA § 303. North Dakota adopted a compliance schedule authorizing provision in § 33-16-02.1-05, which states, "A North Dakota pollutant discharge elimination system permit may contain a schedule to return a permittee to compliance with water quality based effluent limits consistent with federal and state regulations. Compliance schedules in North Dakota pollutant discharge elimination system permits are subject to the requirements of § 33-16-01-15 and cannot be issued for new discharges or sources." Today's action by EPA approves the state's intent to authorize compliance schedules where appropriate in NPDES permits as a component of its water quality standards. This action does not apply to the state's compliance schedule implementing regulations, nor does it indicate whether any particular compliance schedule is or is not appropriate. Each compliance schedule authorized by the state through a NPDES permit must be consistent with the requirements of 40 C.F.R. § 122.47 and any more stringent state requirements." The EPA approves this revision which is consistent with the requirements of the CWA and the EPA's implementing regulation at 40 C.F.R. § 131.15.

Non-Substantive Changes to Approved Water Quality Standards (§ 33-16-02.1)

The EPA considers non-substantive edits to existing water quality standards to constitute new or revised water quality standards that EPA has the authority and duty to approve or disapprove under CWA § 303(3)(c).[7] While these revisions do not substantively change the meaning or intent of the existing water

[6] See 80 Fed. Reg. 51020 (August 21, 2015). This notice and supplemental materials are available at http://www.epa.gov/wqs-tech/final-rulemaking-update-national-water-quality-standards-regulation.

[7] See EPA's October 2012 *What is a New or Revised Water Quality Standard Under CWA 303(c)(3)? – Frequently Asked*

quality standards, the EPA believes that it is reasonable to treat such non-substantive changes in this manner to ensure public transparency as to which provisions are effective for purposes of the CWA. The EPA approves these non-substantive edits to § 33-16-02.1 that were made to reorganize and clarify the rule revisions, including:

- Revision to N.D. Admin. Code § 33-16-02.1-04 adds definitions for "Nutrients" and "Eutrophication." These definitions were added to the state's WQS to clarify terms in other sections of the rules; they do not affect or alter how the WQS apply.
- Revision to N.D. Admin. Code § 33-16-02.1-09(3)(a) changes text for consistency.
- Revision to N.D. Admin. Code § 33-16-02.1-09(3)(b) adds text for clarity and consistency; and moves the criteria for class I streams from § 33-16-02.1-09(3)(b) into Table 1.
- Revision to N.D. Admin. Code § 33-16-02.1-09(3)(c) adds text for clarity and moves the site-specific sulfate standard previously listed in § 33-16-02.1-09(3)(b) into Table 1.
- Revision to N.D. Admin. Code § 33-16-02.1-09(3)(d) through (g) modifies text for consistency and accuracy, and it re-alphabetizes (d) through (g).
- Revision to N.D. Admin. Code § 33-16-02.1-09(3)(e) changes text for consistency and clarity by moving Class III stream criteria for sulfate to Table 1.
- Revision to N.D. § 33-16-02.1-09(3)(g)(1) changes text for consistency and clarifies that the physical and chemical criteria for class I streams shall apply to all classified lakes or reservoirs listed in Appendix II.
- Revision to Admin. Code § 33-16-02.1-09 Table 1 reformats table into rows and columns and adds beneficial uses.
- Revision to Admin. Code § 33-16-02.1-09 Table 2 corrects the Chemical Abstracts Service registry number for PCB-1016 from 12674-11-2 to 126764-11-2, updates the chemical name of 4,6-Dino-o-cresol (4,6-Dinitro-2-methylphenol) to 2-Methyl-4,6-Dinitrophenol, and updates the chemical name of p-Chloro-m-cresol (4-chloro-3-methylphenol) to 3-Methyl-4-Chlorophenol.
- Revision to Admin. Code § 33-16-02.1 Appendix II corrects the county name for Niagara Dam from Grant County to Grand Forks County.

Addition of footnote recognizing the biotic ligand model (BLM) as an appropriate tool for developing site specific limits for copper as well as the water effect ratio method (§ 33-16-02.1-09 Table 2).

North Dakota revised Admin. Code § 33-16-02.1-09 Table 2, by adding footnote 16, which recognizes the biotic ligand model as an option for developing site-specific copper criteria. The BLM has been the EPA's 304(a) recommended freshwater aquatic life criteria for copper since 2007[8] and reflects the most up-to-date science on copper bioavailability and toxicity with which to develop protective copper criteria. The EPA recommends states and tribes use the BLM rather than previously recommended approaches to develop site-specific aquatic life criteria for copper and is encouraged that North Dakota is considering use of the BLM. The EPA approves this revision which is consistent with the requirements of CWA § 303(c) and 40 C.F.R. Part 131. This approval provides the state with options and flexibility for developing site-specific limits for copper.

Questions available at https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf

[8] See *Aquatic Life Ambient Freshwater Quality Criteria – Copper 2007 Revision* (EPA-822-R-07-001), February 2007.

Implementation of Senate Bill Number 2327 (§ 33-16-02.1) Creation of North Dakota Department of Environmental Quality (NDDEQ).

On April 7, 2017, the Governor of North Dakota signed Senate Bill 2327 into law mandating a process leading to the creation of a new North Dakota Department of Environmental Quality. During the 2018 triennial review, the Environmental Health Section Chief, who is authorized under Section 1 of that bill to adopt rules for the new NDDEQ, adopted both revisions to the Department's current Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33-16-02.1, and the NDDEQ's new Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33.1-16-02.1. The NDDEQ rules are essentially identical to the Department's current rules, with some minor edits to reflect the creation of the new agency and the transfer of water quality standards authority from the Department to NDDEQ. The NDDEQ rules will be effective upon establishment of the NDDEQ, as specified in Section 1 of S.B. 2327. In accordance with 40 C.F.R. § 131.20, the EPA approves the Department's WQS revisions and is approving the DEQ rules, which will be effective when the statutory requirements to formally transfer water quality standards authority is complete.

The EPA notes that its approval of these editorial, non-substantive revisions does not re-open the EPA prior approval of the underlying substantive WQS.

2) WATER QUALITY STANDARDS APPROVED SUBJECT TO ESA CONSULTATION

Revisions in this category are approved for purposes of CWA § 303(c), subject to the results of consultation under Section 7(a)(2) of the ESA. Should the consultation process with the FWS identify information that supports a conclusion that one or more of the revisions in this category are likely to jeopardize the continued existence of any listed endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat of such species, the EPA will, pursuant to CWA § 303(c)(4)(B), take additional action regarding the revision of water quality standards for North Dakota. The discussion below identifies revisions in this category and the basis for the EPA's approval action.

General water quality standards (§ 33-16-02.1-08)

North Dakota amended Admin. Code § 33-16-02.1-08(1)(a) by adding a "free from" criterion for nutrients. The state's adoption of a narrative nutrient criterion is driven by its goal to reduce nutrients and protect North Dakota's water resources and designated beneficial uses. The effect of the EPA approving North Dakota's new narrative nutrient criterion is to make it "the applicable water quality standards for purpose of the [CWA]" 40 CFR § 131.21(c). The development of a narrative nutrient criterion is consistent with the EPA guidance for nutrient criteria development and for WQS in general, particularly where used in combination with numeric criteria.[9] The EPA's approval of the criterion is expected to provide beneficial effects to the aquatic ecosystem. The narrative nutrient criterion is based upon the regulatory requirement at 131.11(b)(2): "...In establishing criteria, States should establish narrative criteria or criteria based upon biomonitoring methods where numerical criteria cannot be established or to supplement numerical criteria." The EPA has determined that the revision to

[9] See WQS Handbook, Second Edition, August 1994 (EPA 823-B-94-005a).

§ 33-16-02.1-08(1)(a) is consistent with the CWA and federal regulations and guidance.[10] This revision is approved by the EPA under CWA § 303(c) subject to ESA consultation.

Surface water classifications, mixing zones, and numeric standards (§ 33-16-02.1-09)

North Dakota amended Admin. Code § 33-16-02.1-09(3) by adding § 33-16-02.1-09(3)(f): "Wetlands, isolated ponds, class 4 lakes not already listed in Appendix II, and sloughs and marshes to be protected using the physical and chemical criteria for class III streams, with the exceptions for temperature, dissolved oxygen, and other conditions not attributable to municipal, industrial, domestic and agricultural sources." It is our understanding, based on discussions with the state, that roughly 99% of the class 4 lakes that are not listed in Appendix II are wetlands, and that this revision was made to provide water quality criteria that will protect these waterbodies. Wetlands help maintain and improve water quality by reducing the level of pollutants such as nutrients, BOD, suspended solids, metals and pathogens from entering adjacent waterbodies. Previously, there were no numeric water quality criteria for wetlands. WQS developed specifically for wetlands can provide the scientific basis for a variety of actions to protect and restore wetlands, such as permitting, monitoring, assessment and reporting, and restoration. This revision provides clarification to the North Dakota's WQS by ensuring the appropriate criteria are applied to wetlands, and by defining clearly and accurately how the state applies the standards for enforcement actions that involve the discharge of pollutants to wetlands, which has typically involved the illegal discharge of oil and gas brine. The EPA has determined that the revision to § 33-16-02.1-09(3) is consistent with CWA § 303(c) and 40 C.F.R. § 131.11. This revision is approved by the EPA under CWA § 303(c), subject to ESA consultation.

North Dakota amended Admin. Code § 33-16-02.1-09(3)(g)(6) by adding the following provision: "The numeric dissolved oxygen standard of five milligrams per liter (mg/l) as a daily minimum and the maximum temperature of eighty-five degrees Fahrenheit [29.44 degrees Celsius] shall not apply to wetlands and class 4 lakes." The language was updated to clarify that the lakes and lentic waterbodies not included on the list of waterbodies that are identified in Appendix II have Class III stream criteria applied to them, with the exception of DO and temperature criteria. The EPA has determined that this revision is consistent with CWA § 303(c) and 40 C.F.R. § 131.11. This revision is approved by the EPA under CWA § 303(c), subject to ESA consultation.

Aquatic Life Criteria

North Dakota amended the following aquatic life criteria in Admin. Code § 33-16-02.1-09 Table 2 consistent with criteria recommendations issued by the EPA pursuant to CWA § 304(a).[11]:

Parameter	New/Revised	Adopted Criterion (ug/L)	Scientific Basis
Cadmium[12]	New	1.8 (acute); 0.72 (chronic)	NRWQC
Endrin	Revised	0.086 (acute)	NRWQC

[10] See https://www.epa.gov/sites/production/files/2016-06/documents/wqs-handbook-1994.pdf

[11] See https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

[12] See https://www.epa.gov/wqc/aquatic-life-criteria-cadmium

North Dakota amended Admin. Code § 33-16-02.1-09 Table 2 by revising the hardness-dependent criteria for cadmium (CMC and CCC) in footnotes 6 and 15 as follows:

CMC = e(1.~~0166~~ 0.9789[In (hardness)]-~~3.9240~~ -3.866)

CCC = e(~~0.7409~~ 0.7977 [In (hardness)] ~~4.7190~~ -3.909)

The revised aquatic life criteria in Admin. Code § 33-16-02.1-09 Table 2 and the associated hardness-dependent footnotes are consistent with the EPA's NRWQC, the CWA, and 40 C.F.R. § 131.11. Accordingly, these revisions are approved, subject to ESA consultation.

Stream Classification (§ 33-16-02.1 Appendix I)

North Dakota revised Admin. Code § 33-16-02.1, Appendix I, Stream Classification, by updating the wording to clarify that all tributaries, minor or intermittently flowing water courses, unnamed creeks, or draws not specifically mentioned are classified as Class III streams. This language was updated to specify that the types of waterbodies that are not identified in Appendix I are classified as Class III streams; it does not affect or alter how the WQS apply. The EPA approves this revision, which is consistent with EPA guidance, current science, and Federal regulations at § 131.11, subject to ESA consultation.

Lakes and Reservoir Classification (§ 33-16-02.1 Appendix II)

North Dakota revised Admin. Code § 33-16-02.1, Appendix II, Lake and Reservoir Classification, by updating the wording to clarify that the parameters and criteria designated for Class III streams shall apply to lakes and other lentic waterbodies not listed in Appendix II. The language was updated to clarify that the lakes and lentic waterbodies not included on the list of waterbodies that are identified in Appendix II have Class III stream criteria applied to them, with the exception of dissolved oxygen and temperature criteria. The EPA has determined the revision to Appendix II is consistent with the federal requirements to: (1) designate appropriate water uses to be achieved and protected, and (2) adopt water quality criteria that protect designated uses. See 40 C.F.R. §§ 131.10(a) and 131.11(a)(1). This change will have no impact on the aquatic life community. It is simply being made to establish the most accurate designation for these waterbodies. Accordingly, the revision to Appendix II is approved, subject to ESA consultation.

3) PROVISIONS THE EPA IS NOT ACTING ON TODAY

The EPA is not acting on the following provisions today because the EPA determined they are not WQS requiring EPA review and approval under CWA § 303(c):

Ground Water Classifications and Standards (§ 33-16-02.1-10)

Revisions to Admin. Code § 33-16-02.1-10(1) and (2) by updating language for groundwater classifications and standards for classification purposes.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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DEC 27 2018

Ref: 8WP-CWQ

Alan Matheson, Executive Director
Utah Department of Environmental Quality
195 North 1950 West, 4th Floor
P.O. Box 144810
Salt Lake City, Utah 84114-4810

Re: EPA's Action on Revisions to UAC R317-2 Standards of Quality for Waters of the State

Dear Mr. Matheson:

The U.S. Environmental Protection Agency (EPA) Region 8 has completed its review of the revision to Utah Administrative Code (UAC) R317-2 Standards of Quality for Waters of the State. The revised water quality standards (WQS) were adopted by the Utah Water Quality Board (Board) on June 27, 2018, with an effective date of July 2, 2018, and submitted to the EPA for review with a letter dated July 25, 2018. The submittal package included: (1) *Water Quality Standards Revisions Supporting Documentation* – Proposed Amendments to R317-2, Standards of Quality for Waters of the State Published in the April 2, 2018 Utah Bulletin; (2) a copy of the notice of proposed amendments; (3) a Hearing Officer Statement and attendance sheets for each of the four public hearings; (4) notice of final adoption of the amendments with the state's response to comment; (5) a link to the current version of R317-2; and (6) a letter from the State Attorney General's office certifying that the amendments were adopted in accordance with state law. Receipt of the submittal package on July 31, 2018 initiated the EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA or the Act) and the implementing federal WQS Regulation (40 C.F.R. Part 131).

Clean Water Act Review Requirements

The CWA § 303(c)(2), requires states and authorized Indian tribes[1] to submit new or revised WQS to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA § 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the state or authorized tribe and specify the changes needed to meet the requirements. If such changes are not adopted by the state or authorized tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standard pursuant to CWA § 303(c)(4). The Region's goal has been, and will continue to be, to work closely with states and authorized tribes

[1] CWA § 518(e) specifically authorizes the EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA § 303. See also 40 C.F.R. § 131.8.

throughout the WQS revision process so that submitted revisions can be approved by the EPA. Pursuant to 40 C.F.R. § 131.21(c), new or revised WQS submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

Today's Action

Today the EPA is approving the following revisions to WQS adopted by the Board on June 27, 2018, without condition:

- R317-2-3.5.d. – deleting the requirement for an Antidegradation Level II Review for all Class 1C drinking water use waters;
- R317-2-3.5.e. – adding a requirement to provide for public notice and comment whenever changes are proposed to the Antidegradation Implementation Guidance;
- R317-2-11 – extending the public notice and comment opportunities for revisions to WQS;
- R317-2-13 – informational and formatting changes to Classifications of Waters of the State;
- R317-13.5.c. Classifications of Waters of the State:
    - revising the drinking water and recreation use classifications assigned to Grove and Battle Creeks; and
    - revising the recreation use classification assigned to Mill Creek and Utah Lake; and
- R317-2-14 Numeric Criteria – revisions to Table 2.14.1 Domestic use fluoride criteria and Agriculture use Total Dissolved Solids water body segment descriptions; and Table 2.14.6 Human Health Criteria.

The EPA is approving the following revisions to WQS adopted by the Board on June 27, 2018 pending completion of consultation under Section 7(a)(2) of the Endangered Species Act:

- R317-2-14 Numeric Criteria – revisions to Table 2.14.2 Aquatic Life Criteria:
    - updating cadmium and new carbaryl criteria;
    - making corrections to ammonia and silver criteria; and
- R317-13.5.c. Classifications of Waters of the State - revised aquatic life uses assigned to Grove and Battle Creeks.

The rationale for the EPA's action is discussed in detail in the enclosure.

Endangered Species Act Requirements

The EPA's approval of Utah's revisions to WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). Section 7(a)(2) of the ESA states "each federal agency … shall …insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical…" Accordingly, on October 15, 2018, the EPA initiated consultation with the U.S. Fish and Wildlife Service (USFWS or Service) regarding our action on the revisions to Utah's WQS, and is approving some revisions, as noted above, pending completion of consultation under Section 7(a)(2) of the ESA.

Indian Country

The WQS approval in today's letter applies only to water bodies in the state of Utah and does not apply to waters that are within Indian country, as defined in 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove WQS applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for WQS for waters within Indian country.

Conclusion

The EPA thanks the Department of Environmental Quality and the Board for their efforts to review and revise Utah's WQS. The recent revisions update and clarify Utah's existing regulations and improve the state's water quality program. The EPA looks forward to working with the Department and Board to make additional improvements to the State's WQS. If you have any questions, please contact George Parrish on my staff at (303) 312-7027 or parrish.george@epa.gov.

Sincerely,

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Enclosure

cc: Erica Gaddis, Director, Utah Division of Water Quality

Chris Bittner, Utah Division of Water Quality

RATIONALE FOR THE EPA'S ACTION ON THE REVISIONS TO UAC R317-2 ADOPTED BY THE UTAH WATER QUALITY BOARD JUNE 27, 2018

Summary

Pursuant to Clean Water Act (CWA) § 303(c) the U.S. Environmental Protection Agency (EPA) Region 8 is acting on the revisions to *Standards of Quality for Waters of the State* (Utah Administrative Code R317-2) adopted by the Utah Water Quality Board (Board) on June 27, 2018. Discussion of the EPA's action on the new or revised water quality standards (WQS) is organized into the following categories: (I) WQS approved without condition; (II) WQS approved pending completion of Endangered Species Act (ESA) Section 7 consultation; and (III) provisions the EPA is not acting on today.

(I) Water Quality Standards Provisions Approved Without Condition

R317-2-3.5.d. Deleting the Requirement for an Antidegradation Level II Review for all Class 1C Drinking Water Use Waters

In R317-2-3.5.d, the Board deleted the requirement that an Antidegradation Level II Review is always required for all Class 1C drinking water use waters.

> ~~An Antidegradation Level II Review will be required by the Director for discharges to waters with a Class 1C drinking water use assigned.~~

Under existing antidegradation procedures (see R317-2-3.5.a – b) an antidegradation review is required for all new discharges and for any existing discharge with an increase in pollutant concentration or loading. Therefore, antidegradation reviews are already required for all new or increased discharges to Class 1C waters. The deleted language inadvertently required a Utah Department of Environmental Quality (DEQ) antidegradation review whenever any permitted discharge to a Class 1C water was renewed (e.g., every 5 years for a National Pollutant Discharge Elimination System, or NPDES, permit) even when pollutant concentrations or loads from the discharge have not increased. Deleting this language clarifies that antidegradation reviews are only required for discharges to Class 1C waters when a new or existing permitted discharge will increase pollutant concentration or loading. Deleting this language clarifies and streamlines antidegradation implementation for discharges to Utah's Class 1C waters.

The EPA concludes deleting this language provides a clarification to Utah's Antidegradation Review procedures that is consistent with the CWA and the requirements of 40 C.F.R. § 131.12. Accordingly, this revision is approved.

R317-2-3.5.e. Adding a Requirement to Provide for Public Notice and Comment Whenever Antidegradation Implementation Guidance is Revised

In R317-2-3.5.e the Board adopted a requirement for providing public notice and comment whenever substantive revisions are made to the Antidegradation Implementation Guidance.[2] This revision adds a new last sentence to R317-2-3.5.e as follows:

> e. Public Notice
> The public will be provided notice and an opportunity to comment on the conclusions of all completed antidegradation reviews. When possible, public notice on the antidegradation review conclusions will be combined with the public notice on the proposed permitting or certifying action. In the case of UPDES permits, public notice will be provided through the normal permitting process, as all draft permits are public noticed for 30 days, and public comment solicited, before being issued as a final permit. The Statement of Basis for the draft UPDES permit will contain information on how the ADR was addressed including results of the Level I and Level II reviews. In the case of Section 404 permits from the Corps of Engineers, the Division of Water Quality will develop any needed 401 Certifications and the public notice may be published in conjunction with the U.S. Corps of Engineers public notice procedures. Other permits requiring a Level II review will receive a separate public notice according to the normal State public notice procedures. <u>The public will be provided notice and an opportunity to comment whenever substantive changes are made to the implementation procedures referenced in R317-2-3.5.f.</u>

On August 21, 2015 the EPA published Final Rulemaking to Update the Water Quality Standards Regulation.[3] Included in these revisions is a requirement that any changes made to state or tribal antidegradation implementation procedures must be made available to the public and open to public comment before those changes are adopted. In adopting this new public notice and comment requirement for changes to its Antidegradation Implementation Guidance, the Board has ensured all future substantive revisions will be adopted in a manner that is consistent with the updated public participation requirements.

The EPA concludes this new requirement for public notice and comment whenever substantive changes are made to the Antidegradation Implementation Guidance is consistent with the CWA, 40 C.F.R. Part 25 and the requirements of 40 C.F.R. § 131.12(b). Accordingly, this revision is approved.

<u>R317-2-11 Public Participation: Extending Public Notice and Comment Opportunities</u>

In R317-2-11 the Board adopted a minimum 45-day public notice and comment opportunity before hearings are held for any proposed revisions to WQS. The revisions are as follows:

> R317-2-11. Public Participation.
> <u>Public notices and public hearings will be held for the consideration, adoption, or amendment of the classifications of waters and standards of purity and quality. Public notices shall be</u>

[2] Available on the Utah DEQ website at: https://deq.utah.gov/legacy/programs/water-quality/standards-technical-services/docs/2015/12dec/UDWQ_ADR_Impementation_Guidance_Ver2.0.12_PublicRelease.pdf
[3] See EPA's website at: https://www.epa.gov/wqs-tech/final-rulemaking-update-national-water-quality-standards-regulation

published at least twice in a newspaper of general circulation in the area affected at least 30 days prior to any public hearing. The notice will be posted on a State public notice website at least 45 days before any hearing and a notice will be mailed at least 30 days before any hearing to the chief executive of each political subdivision and other potentially affected persons. ~~Public hearings will be held to review all proposed revisions of water quality standards, designations and classifications, and public meetings may be held for consideration of discharge requirements set to protect water uses under assigned classifications.~~

The State of Utah has general public notice and comment requirements in its administrative procedures, and specific notice requirements for WQS in § 19-5-110 of the Utah Code. The new language in R317-2-11 adopted by the Board implements these state requirements and ensures consistency with the federal public participation requirements for revisions to WQS at 40 C.F.R. § 131.20(b) and 40 C.F.R. Part 25. It is EPA's understanding that the 45-day notice period will begin when the notice is made available on State websites. While the DEQ's past WQS revisions complied with federal public participation requirements, the revisions to R317-2-11 provide transparent assurance that future public notice of revisions to Utah WQS will continue to align with the notice and comment opportunity outlined in the federal requirements.

The EPA concludes the revised R317-2-11 Public Participation language provides clarification that Utah's WQS revisions are conducted using public participation procedures that are consistent with the CWA, 40 C.F.R. Part 25 and the requirements of 40 C.F.R. § 131.20(b). Accordingly, this revision is approved.

R317-2-13 Informational and Formatting Changes to Classifications of Waters of the State

In R317-2-13 Classifications of Waters of the State, specific descriptions for waters with site-specific criteria were added and the footnote added to the affected use. Formatting changes were made to align the columns, indentations, and the order in which waters appear. No changes were made to the assigned designated uses or criteria. The EPA recognizes these revisions as providing further clarity and ease of understanding of Utah's WQS documents. While the EPA considers these non-substantive changes to Utah's WQS, such "housekeeping" revisions are important in maintaining the WQS and improve the transparency and clear reading of the document.

The EPA concludes the R317-2-13 Classifications of Waters of the State revised formatting and footnote language provides improved clarity in using Utah's WQS. These revisions are consistent with the CWA and 40 C.F.R. Part 131. Accordingly, these revisions are approved.

R317-2-13.5.c. Revisions to Domestic and Recreation Use Classifications of Waters of the State

Revisions to Domestic Uses Assigned to Grove and Battle Creeks

The Board adopted revisions to the Domestic (Class 1C drinking water) uses designated for Grove and Battle Creeks, in Utah County. Both water bodies were previously designated Class 2B and 3D (see

Aquatic Life use revisions below), with no Domestic use designations. The Board adopted Class 1C Domestic use for both water bodies:

> Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.

These revisions were based on Plan Approval and Operating permits (as potential drinking water supplies), and site visits for both waters. This represents an upgrade to the Domestic use designated to both water bodies.

EPA notes that the site visits to the two water bodies also affirmed that the Class 2B infrequent primary contact recreation uses are appropriately designated to both waters due to low flows and lack of pools affording sufficient depth for frequent immersion. As a result, their recreation uses remain unchanged.

The EPA concludes that the revised Class 1C Domestic uses designated for Grove and Battle Creeks are consistent with the Agency's guidance on designating water supply uses, the CWA and the requirements of 40 C.F.R. § 131.10. Accordingly, these revisions are approved.

Revisions to Recreation Use Assigned to Mill Creek

The Board adopted revisions to the Recreation use designated for Mill Creek, in Grand County. This water body was previously designated Class 2B infrequent primary contact recreation and is revised to Class 2A frequent primary contact recreation:

> Class 2A - Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving and water skiing.

This revision is based on letters of support and pictures providing evidence of swimmers submitted by the Moab Watershed Council and Bureau of Land Management, and hence that Class 2A frequent primary contact recreation is an existing use in Mill Creek. This represents an upgrade to the Recreation use designated for Mill Creek.

The EPA concludes that the revised Class 2A Recreation use designated for Mill Creek is consistent with the Agency's guidance on designating existing recreation uses, the CWA and the requirements of 40 C.F.R. § 131.10. Accordingly, this revision is approved.

Revisions to Recreation Use Assigned to Utah Lake

The Board adopted revisions to the Recreation use designated for Utah Lake, in Utah County. This water body was previously designated Class 2B infrequent primary contact recreation and is revised to Class 2A frequent primary contact recreation (see Class 2A description above). The public notice materials cite:

> Utah Lake has public swim beaches (e.g., Lincoln Beach, Sandy Beach Access) and several marinas for access to waterskiing and wakeboarding (e.g., American Fork Boat Harbor, Lincoln Harbor, Utah Lake State Park).

This revision acknowledges regular occurrence of swimming, water skiing and wakeboarding in Utah Lake, and hence that Class 2A frequent primary contact recreation is an existing use in Utah Lake. This represents an upgrade to the Recreation use designated for Utah Lake.

The EPA concludes that the revised Class 2A Recreation use designated for Utah Lake is consistent with the Agency's guidance on designating existing recreation uses, the CWA and the requirements of 40 C.F.R. § 131.10. Accordingly, this revision is approved.

R317-2-14 Numeric Criteria

Revisions to Table 2.14.1 Numeric Criteria for Domestic, Recreation and Agricultural Uses

The EPA publishes, and from time to time revises, recommended criteria for water quality under CWA § 304(a) reflecting the latest scientific knowledge.[4] The Board adopted updated Domestic (Class 1C drinking water) use criteria for fluoride consistent with the EPA's current recommendation[5] of 4.0 mg/l. Recent studies suggest that children's water intake does not significantly increase with increases in outdoor air temperature; hence these findings support the use of one target concentration for fluoride in all ambient air temperatures. Accordingly, footnote (3) of Table 2.14.1, previously adjusting the fluoride criterion applicable at different ambient air temperatures, was removed. Additionally, 10 organic pollutants with an EPA domestic water supply Maximum Contaminant Level (MCL) recommendation but no other Human Health criterion recommendation were moved from Table 2.14.6 to Table 2.14.1 without changes to the class 1C Domestic use criteria values. These pollutants are provided in Table 1.

Table 1. Pollutants added to Table 2.14.1 without changes to their criteria.

Pollutant	CAS Number	Criterion (ug/l)
Alachlor	15973-60-8	2
Atrazine	1912-24-9	3
Carbofuran	1563-66-2	40
Dalapon	75-99-0	200
Di (2ethylhexl) adipate	103-23-1	400
Dibromochloropropane	96-12-8	0.2
Dinoseb	88-85-7	7
Diquat	85-00-7	20
Endothall	145-73-3	100

[4] The EPA publishes National Recommended Water Quality Criteria representing specific levels of chemicals or conditions in a water body that are expected to protect designated uses. As new scientific studies are published these recommendations are updated.

[5] New criteria recommendations were published for fluoride in 2011.

Pollutant	CAS Number	Criterion (ug/l)
Ethylene Dibromide	106-93-4	0.05

The Board also adopted Chemical Abstracts Service (CAS) numbers for all the named organic parameters in Table 2.14.1, as shown above.

Footnote (4) of Table 2.14.1, specifying site-specific criteria for Total Dissolved Solids (TDS) in Agricultural (Class 4 crop irrigation and livestock watering) use waters, was revised to include the tributaries to Quitchupah Creek:

Quitchupah Creek and tributaries.

The EPA approved the site-specific 3,800 mg/l TDS and 2,000 mg/l total sulfate criteria for Quitchupah Creek on August 24, 2010 after reviewing the supporting analyses provided by the Board. (See *Evaluation of Acceptable Sulfate Concentrations for Quitchupah and Ivie Creeks*, UT DWQ, 2009; and EPA August 24, 2010 action letter and rationale.) The EPA's approval explicitly applies to the entire Quitchupah Creek watershed, but the tributaries were inadvertently omitted from the Quitchupah Creek description in R317-2-14 Numeric Criteria, Table 2.14.1 footnote (4). This revision corrects that omission in the water body description to the previously approved site-specific TDS and sulfate criteria for Quitchupah Creek. Additionally, the Board made non-substantive revisions updating nine of the water body boundary descriptions in footnote (4).

The EPA concludes that these criteria and language revisions to Table 2.14.1 and its footnotes are consistent with the Agency's current criteria recommendations, the CWA and the requirements of 40 C.F.R. § 131.11. Accordingly, these revisions are approved.

Revisions to Table 2.14.6 Numeric Criteria for Human Health

Human health water quality criteria protect any designated uses related to ingestion of water, ingestion of aquatic organisms, or other waterborne exposure from surface waters. The Board adopted multiple revisions to Table 2.14.6 List of Human Health Criteria consistent with EPA's current criteria recommendations. These new and revised Human Health criteria are shown in Table 2 below. The bases for the new and revised human health criteria include the National Recommended Water Quality Criteria[6] published pursuant to CWA § 304(a), and the MCL or the Secondary Maximum Contaminant Level established by the EPA under the Safe Drinking Water Act.

[6] In 2015 the EPA updated its national recommended water quality criteria for human health for 94 chemical pollutants to reflect the latest scientific information and EPA policies, including updated fish consumption rate, body weight, drinking water intake, health toxicity values, bioaccumulation factors, and relative source contributions. See EPA's current human health criteria recommendations at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table.

Table 2. New and Revised Criteria in Table 2.14.6 List of Human Health Criteria

Pollutant	**CAS Number**	**Water + Organism** (ug/l)	**Organism Only** (ug/l)
Nickel	7440-02-0	610	--
Selenium	7782-49-2	170	--
Acrolein	107-02-8	3.0	400
Acrylonitrile	107-13-1	0.061	7.0
Benzene	71-43-2	2.1	--
Bromoform	75-25-2	7.0	120
Carbon Tetrachloride	56-23-5	0.4	5
1,2-Dichloroethane	107-06-2	9.9	650
1,1-Dichloroethylene	75-35-4	300	--
1,2-Dichloropropane	78-87-5	0.90	31
1,3-Dichloropropene	542-75-6	0.27	12
Ethylbenzene	100-41-4	68	130
Methyl Bromide	74-83-9	*	10,000
Methylene Chloride	75-09-2	20	1,000
1,1,1,2-Tetrachloroethane	79-34-5	0.2	3
Tetrachloroethylene	127-18-4	10	29
Toluene	108-88-3	57	520
Trans-1,2- Dichloroethylene	156-60-5	--	4,000
1,1,1-Trichloroethane	71-55-6	10,000	200,000
1,1,2-Trichloroethane	79-00-5	0.55	8.9
Trichloroethylene	79-01-6	0.6	7
Vinyl Chloride	75-01-4	0.022	1.6
2-Chlorophenol	95-57-8	30	800
2,4-Dichlorophenol	120-83-2	10	60
2,4-Dimethlyphenol	105-67-9	100	3,000
2-Methyl-4,6-Dinitrophenol	534-52-1	2	30
2,4-Dinitrophenol	51-28-5	10	300
3-Methyl-4-Chlorophenol	59-50-7	500	2,000
Pentachlorophenol	87-86-5	0.03	0.04
Phenol	108-95-2	4,000	300,000
2,4,5-Trichlorophenol	95-95-4	300	600
2,4,6-Trichlorophenol	88-06-2	1.5	2.8
Acenaphthene	83-32-9	70	90
Anthracene	120-12-7	300	400
Benzidine	92-87-5	0.00014	0.011
Benzo(a)anthracene	56-55-3	0.0012	0.0013
Benzo(a)pyrene	50-32-8	0.00012	0.00013

Pollutant	CAS Number	Water + Organism (ug/l)	Organism Only (ug/l)
Benzo(b)fluoranthene	205-99-2	0.0012	--
Benzo(k)fluoranthene	207-08-9	0.012	0.013
Bis2-Chloromethylether	542-88-1	0.00015	0.017
Bis2-Chloro-1-methylethylether	108-60-1	200	4,000
Bis(2-Chloroethyl) Ether	111-44-4	--	2.2
Bis(2-Ethylhexyl) Phthalate	117-81-7	0.32	*
Butylbenzyl Phthalate	85-68-7	0.1	0.1
2-Chloronaphthalene	91-58-7	800	1,000
1,2-Dichlorobenzene	95-50-1	1,000	3,000
1,3-Dichlorobenzene	541-73-1	7	10
1,4-Dichlorobenzene	106-46-7	300	900
3,3-Dichlorobenzidine	91-94-1	*	0.15
Diethyl Phthalate	84-66-2	600	600
Dimethyl Phthalate	131-11-3	2,000	2,000
Di-n-Butyl Phthalate	84-74-2	20	30
2,4-Dinitrotoluene	121-14-2	*	1.7
Dinitrophenols	25550-58-7	10	1,000
Fluoranthene	206-44-0	20	20
Fluorene	86-73-7	50	70
Hexachlorobenzene	118-74-1	0.000079	0.000079
Hexachlorobutadiene	87-68-3	0.01	0.01
Hexachlorocyclopentadiene	77-47-4	4	4
Ideno(1,2,3-cd)pyrene	193-39-5	0.0012	0.0013
Isophorone	78-59-1	34	1,800
Nitrobenzene	98-95-3	10	600
N-Nitrosodiethylamine	55-18-5	0.0008	1.24
N-Nirtosopyrrolidine	930-55-2	0.016	34
Pentachlorobenzene	608-93-5	0.1	0.1
Pyrene	129-00-0	20	30
1,2,4-Trichlorobenzene	120-82-1	*	0.076
Aldrin	309-00-2	0.00000077	0.00000077
Alpha-BHC	319-84-6	0.00036	*
Beta-BHC	319-85-7	0.008	0.014
Gamma-BHC (Lindane)	58-89-9	4.2	4.4
Hexachlorocyclohexane (HCH) - Technical	608-73-1	0.0066	0.010
Chlordane	57-74-9	*	0.00032

Pollutant	CAS Number	Water + Organism (ug/l)	Organism Only (ug/l)
4,4-DDT	50-29-3	*	0.000030
4,4-DDE	72-55-9	0.000018	0.000018
4,4-DDD	72-54-8	0.00012	0.00012
Dieldrin	60-57-1	0.0000012	0.0000012
Alpha-Endosulfan	959-98-8	20	30
Beta-Endosulfan	33213-65-9	20	40
Endosulfan Sulfate	1031-07-8	20	40
Endrin	72-20-8	0.03	0.03
Endrin Aldehyde	7421-93-4	1	1
Heptachlor	76-44-8	0.0000059	0.0000059
Heptachlor Epoxide	1024-57-3	0.000032	0.000032
Methoxychlor	72-43-5	0.02	0.02
Toxaphene	8001-35-2	0.0007	0.00071

* see Section III, Table 4 below.

Additionally, the Board removed from Table 2.14.6 pollutants for which there are no current CWA § 304(a) human health criteria recommendations (see Revisions to Table 2.14.1 above). The Board also adopted CAS numbers for all the named pollutants in Table 2.14.6.

The EPA concludes that these revisions to R317-2-14 Numeric Criteria, Table 2.14.6 are consistent with the Agency's current criteria recommendations, the CWA and the requirements of 40 C.F.R. § 131.11. Accordingly, these revisions are approved without condition.

(II) Water Quality Standards Provisions Approved Pending Completion of ESA Consultation

The EPA's approval of Utah's WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the ESA. Section 7(a)(2) of the ESA states "each federal agency … shall …insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical…" Consistent with relevant implementing regulations, Section 7 requirements only apply to actions in which there is discretionary federal involvement or control. 50 C.F.R. § 402.03. Also, under the regulations, consultation is only required for actions that "may affect" listed species or critical habitat. 50 C.F.R. § 402.14. Consultation is not required where the action has no effect on such listed species or designated critical habitat.

The EPA has determined that its approval of the new and revised WQS for aquatic life uses and criteria may affect listed species or critical habitat in Utah. (50 C.F.R. § 402.14.) Hence these WQS approval actions are subject to consultation under Section 7 requirements. On October 15, 2018 the EPA initiated consultation under ESA Section 7(a)(2) with the U.S. Fish and Wildlife Service (USFWS or Service) on

these new and revised WQS. However, the EPA has a duty under CWA § 303(c) to complete its WQS action in a timely manner, and in approving these provisions subject to the completion of ESA consultation the Agency is fulfilling its legal obligation under the CWA. The EPA's approval of Utah's WQS revisions pending completion of consultation under Section 7(a)(2) is fully consistent with Section 7(d) of the ESA because it does not foreclose either the formulation by the Service or the implementation by the EPA of any alternatives that might be determined in the consultation to be needed to comply with ESA Section 7(a)(2). Proceeding with a CWA 303(c) approval action prior to the completion of the ESA Section 7 consultation provides a more protective condition for listed species and/or designated critical habitat during the interim period while the EPA is completing the ESA Section 7 consultation requirements on the WQS approval. Under CWA Section 303(c)(4)(B), the EPA has authority to take additional action regarding the revision of WQS for Utah if the consultation with the USFWS identifies deficiencies in the revised WQS requiring remedial action by the EPA, after the EPA has approved the revisions. Accordingly, the revisions discussed below are approved subject to the completion of ESA Section 7(a)(2) consultation with the USFWS.

R317-2-14 Numeric Criteria

Revisions to Table 2.14.2 Numeric Criteria for Aquatic Wildlife

Aquatic life water quality criteria are designed to support any designated uses related to protection and propagation of fish, shellfish, and wildlife and the structure and function of the aquatic communities on which they depend. The EPA's CWA § 304(a) aquatic life criteria recommendations represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to aquatic life. The Board adopted revisions to Table 2.14.2 Numeric Criteria for Aquatic Wildlife consistent with EPA's current criteria recommendations for the protection of Aquatic Life.[7] These include adopting new and revised criteria for acute and chronic exposure to cadmium and carbaryl, and criteria for acute exposure to silver protective of all Class 3 (Aquatic Wildlife) uses. These three criteria revisions are adopted specifically to Class 3A, 3B, 3C (Aquatic Wildlife) and 3D (Waterfowl and Water-Oriented Wildlife) and the necessary aquatic organisms in their food chains, applicable statewide. These new and revised Aquatic Wildlife criteria are shown in Table 3 below.

Table 3. New and Revised Criteria in Table 2.14.2 Numeric Criteria for Aquatic Wildlife.

Pollutant	**CAS Number**	**Acute** (ug/l)	**Chronic** (ug/l)
Cadmium	7440-03-9	1.8	0.72
Silver	7740-22-4	3.2	--
Carbaryl	63-25-2	2.1	2.1

The Board also adopted a new footnote (8):

(8) See also numeric criteria for organism only in Table 2.14.6.

[7] See National Recommended Water Quality Criteria – Aquatic Life Criteria Table, available at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

This new footnote alerts readers that additional (Table 2.14.6, Human Health, Organism Only) criteria are applicable to Class 3 uses. This new footnote (8) adds clarity to which criteria apply to protecting fish, aquatic and aquatic-oriented wildlife, and their food chains in state surface waters.

The EPA concludes that these aquatic life criteria revisions to Table 2.14.2 and its footnotes are consistent with the Agency's current criteria recommendations for the protection of aquatic life, the CWA and the requirements of 40 C.F.R. § 131.11. Accordingly, these revisions are approved subject to the completion of ESA Section 7(a)(2) consultation with the USFWS.

R317-2-13.5.c. Revisions to Aquatic Life Use Classifications of Waters of the State

Revisions to Aquatic Life Uses Assigned to Grove and Battle Creeks

The Board adopted revisions to the Aquatic Life uses designated for Grove and Battle Creeks, in Utah County. Both water bodies were previously designated Class 3D and are revised to Class 3A:

> Class 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
> ~~Class 3D – Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.~~

These revisions were based on site visits including habitat assessments, macroinvertebrate sampling and review of the ambient water temperatures observed. This represents an upgrade to the aquatic life uses designated to both water bodies.

The EPA concludes that the revised Aquatic Life uses designated for Grove and Battle Creeks are consistent with the Agency's guidance on designating aquatic life uses, the CWA and the requirements of 40 C.F.R. § 131.10. Accordingly, these revisions are approved subject to the completion of ESA Section 7(a)(2) consultation with the USFWS.

(III) Water Quality Standards Provisions EPA is Not Acting on Today

The EPA is not taking CWA § 303(c) action today on some of the criteria adopted by the Board. Some of the Table 2.14.6 Human Health criteria revisions adopted by the Board contain typographical errors and were adopted unintentionally. After discussions with the DEQ, the EPA is not acting on these criteria today. It is EPA's understanding that the DEQ intends to correct these errors at the next rulemaking opportunity and submit the corrected criteria to EPA for action under CWA § 303(c).

Table 4. Revisions Adopted in Table 2.14.6 Human Health Criteria on which EPA is Not Acting.

Pollutant	CAS Number	Water + Organism (ug/l)	Organism Only (ug/l)
Methyl Bromide	74-83-9	100	--
Bis(2-Ethylhexyl) Phthalate	117-81-7	--	0.037

Pollutant	CAS Number	Water + Organism (ug/l)	Organism Only (ug/l)
3,3-Dichlorobenzidine	91-94-1	0.04	--
2,4-Dinitrotoluene	121-14-2	0.49	--
1,2,4-Trichlorobenzene	120-82-1	0.07	--
Alpha-BHC	319-84-6	--	0.000050
Chlordane	57-74-9	0.00030	--
4,4-DDT	50-29-3	0.000032	--

Accordingly, the EPA is not taking CWA § 303(c) action on these Table 2.14.6 Human Health criteria revisions today.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

NOV 02 2018

Eliceo D. Cabrera
Administrator
CNMI Bureau of Environmental and Coastal Quality
P.O. Box 501304
Saipan, MP 96950-1304

Subject: Approval of 2018 Commonwealth of the Northern Mariana Island (CNMI) Water Quality Standard Amendments

Dear Mr. Cabrera:

I am pleased to approve CNMI's Water Quality Standard amendments which adopt EPA's national criteria for ammonia, cadmium, selenium, and the human health criteria updates for 94 pollutants. The amendments are consistent with the requirements of Clean Water Act (CWA) section 303(c) and EPA's implementing regulations at 40 CFR § 131 including public notice requirements at 40 CFR § 131.20. The State has appropriately established ammonia, cadmium, and selenium standards to protect aquatic life, and updated human health criteria for 94 pollutants for fresh and marine waters of CNMI. The Bureau of Environmental and Coastal Quality submitted a complete package to the EPA on September 5, 2018.

Today's approval includes the following revisions:

- Adoption of EPA's 2013 Freshwater Aquatic Life Criteria for Ammonia
- Adoption of EPA's 2016 Aquatic Life Criteria for Cadmium
- Adoption of EPA's 2016 Freshwater Aquatic Life Criteria for Selenium
- Adoption of EPA's 2015 Human Health Criteria Update for 94 Pollutants
- Deletion of fecal coliform as a microbiological requirement
- Deletion of redundant text regarding chlorine water quality standards

The revised water quality standards apply to fresh and marine waters, whichever is appropriate. EPA finds that these revised water quality standards are reasonable and appropriate for the protection of aquatic life and human health.

I look forward to our continued partnership to protect aquatic life, human health and CNMI's waters. Please call me at (415) 972-3337 if you would like to discuss this further, or have your staff contact Nicole Tachiki at (415) 972-3161.

Sincerely,

Tomás Torres November 2, 2018
Director, Water Division

Enclosure

cc: Ray Masga, BECQ
Kathy Yuknavage, BECQ

Enclosure

EPA Review of the Commonwealth of the Northern Mariana Islands (CNMI) Water Quality Standards Amendments

I. Background

The subject amendment was submitted for adoption by the Bureau of Environmental and Coastal Quality (BECQ). The water quality standards were certified by the Attorney General on August 23, 2018 and adopted in the Commonwealth Register on August 28, 2018. The main submission package was received by EPA Region 9 on September 5, 2018. EPA considers the State's submittal complete as of the date of receipt of the full submittal, September 5, 2018.

CNMI adopted all of EPA's published national recommended water quality criteria for aquatic life and human health since their last water quality standards revision in 2014. Fecal coliform was deleted as a microbiological requirement and redundant text regarding chlorine water quality standards was deleted. Editorial changes were made in "§65-130-450 Toxic Pollutants" to fix the format of the text.

Pertinent changes that are under the authority of CWA section 303(c) include: the adoption of EPA national criteria for ammonia, cadmium, selenium, and the 2015 human health ambient water quality criteria update which includes 94 chemical pollutants. EPA did not approve CNMI's adoption of the ammonia criteria in the previous 2015 approval letter, so it is added in this approval letter for clarification.

II. Basis for Revisions

Section 303(c) of the federal Clean Water Act (CWA) requires that states hold public hearings for review of water quality standards (beneficial uses, water quality objectives, and antidegradation policy) at least once every three years. CNMI last updated their water quality standards in 2014. While undergoing their Triennial Review, BECQ decided to adopt all of EPA's national recommended criteria for aquatic life and human health that has been published since their last water quality standards update.

III. Amendments Pertaining to Water Quality Standards

Delete Fecal Coliform as a Microbiological Requirement: BECQ will only use the existing enterococci and *E. coli* water quality standards as fecal indicator bacteria. The fecal coliform water quality standards have been deleted during this amendment [§65-130-401 Part (a) and (b)].

Adopt US EPA National Recommended Water Quality Criteria for Aquatic Life: BECQ has adopted the EPA national criteria by reference to the EPA Aquatic Life Criteria Table on the EPA website. Since CNMI's last water quality standards update in 2014, the following aquatic life criteria have been added or updated by EPA: ammonia, cadmium, and selenium. The CNMI water quality standards [§65-130-450 Part (d)] read as follows:

"(d) BECQ hereby incorporates the U.S. Environmental Protection Agency's national Recommended Water Quality Criteria. U.S. EPA *National Recommended Water Quality Criteria – Aquatic Life Criteria Table* (2018), available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-

aquatic-life-criteria-table. The concentration of toxic pollutants shall not exceed EPA's aquatic life criteria for freshwater or saltwater, whichever is appropriate.

(1) Acute Toxicity Standards: All Commonwealth or state waters shall be free from pollutants in concentrations which exceed the acute standards listed in the National Recommended Water Quality Criteria for fresh and marine waters.
(2) Chronic Toxicity Standards: No pollutant in all Commonwealth or state waters shall exceed concentrations over a four-day average of the chronic standards listed in the National Recommended Water Quality Criteria for fresh and marine waters more than once in three years."

Bullet (3) in Part (d) has been deleted from the water quality standards. Bullet (3) specified the maximum levels of total residual chlorine allowable in Commonwealth waters, but the chlorine standards are already considered adopted into CNMI standards by reference to the aquatic life criteria table on the EPA website.

Adopt US EPA National Recommended Water Quality Criteria for Human Health: BECQ has adopted the EPA national criteria by reference to the EPA Human Health Criteria Table on the EPA website. Since CNMI's last water quality standards update in 2014, the following human health criteria have been added or updated by EPA: 2015 Human Health Ambient Water Quality Criteria Update, which includes 94 chemical pollutants. The CNMI water quality standards [§65-130-450 Part (e)] read as follows:

"(e) BECQ hereby incorporates the U.S. Environmental Protection Agency's National Recommended Water Quality Criteria established pursuant to CWA 304(a). U.S. EPA, *National Recommended Water Quality Criteria – Human Health Criteria Table* (2018), available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table."

V. ESA Consultation and Water Quality Standards Approvals

Human Health Standards

Section 7(a)(2) of the ESA states that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened (listed) species or result in the destruction or adverse modification of critical habitat. EPA's "Recommended Approaches to Improve Endangered Species Act (ESA) Consultation on Approvals of State and Tribal Water Quality Standards," dated January 16, 2009, states that ESA consultation requirements do not apply to actions where EPA lacks discretion to protect species, or where an EPA action has no effect on listed species or critical habitat. For ESA section 7(a) to apply, EPA must be taking an action in which it has sufficient discretionary federal involvement or control to protect listed species. EPA has concluded that it lacks sufficient discretionary federal involvement or control to protect listed species when it approves state water quality standards actions to protect human health; human health standards are designed to protect humans, not plants or other animals. EPA's discretion to act on a state submission concerning human health is limited to determining whether the submission protects human health. EPA has no discretion to revise an otherwise approvable human health standard to benefit listed species.

"No Effect" Determinations

Section 7(a)(2) of the ESA states that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any

endangered or threatened (listed) species or result in the destruction or adverse modification of critical habitat. EPA's "Recommended Approaches to Improve Endangered Species Act (ESA) Consultation on Approvals of State and Tribal Water Quality Standards," dated January 16, 2009, states that ESA consultation requirements do not apply to actions where EPA lacks discretion to protect species, or where an EPA action has no effect on listed species or critical habitat. For ESA section 7(a) to apply, EPA must be taking an action in which it has sufficient discretionary federal involvement or control to protect listed species.

No effect was determined for species which were not aquatic or aquatic dependent and for species that did not occur or have critical habitat in the project area. EPA has determined "No Effect" for the following species: *Bulbophyllum guamense, Dendrobium guamense, Heritiera longipetiolata, Nervilia jacksoniae, Nesogenes rotensis, Osmoxylon mariannense, Psychotria malaspinae, Serianthes nelsonii, Solanum guamense, Tabernaemontana rotensis, Tinospora homosepala, Tuberolabium guamense, Cycas micronesica, Hypolimnas octocula marianensis, Vagrans egistina, Pteropus mariannus mariannus, Emballonura semicaudata rotensis, Emoia slevini, Todiramphus cinnamominus, Corvus kubaryi, Megapodius laperouse, Rallus owstoni, Aerodramus vanikorensis bartschi, Zosterops rotensis.*

Aquatic Life Standards

EPA initiated consultation with the National Marine Fisheries Service (NMFS) regarding the proposed CWA approval of cadmium, selenium, and ammonia water quality standards on April 11, 2018 via email requesting a species list. The species list was obtained on April 13, 2018. EPA and NMFS staff coordinated during the development of the Biological Evaluation (BE). The EPA completed and submitted the BE to NMFS on September 6, 2018, conveying the EPA's evaluation that the approval of the revised standards is not likely to adversely affect listed species.

EPA initiated consultation with the Fish and Wildlife Service (FWS) regarding the proposed CWA approval of cadmium, selenium, and ammonia water quality standards on April 11, 2018 via email requesting a species list. The species list was obtained on April 12, 2018. EPA and FWS staff coordinated during the development of the BE. The EPA completed and submitted the BE to FWS on September 6, 2018, conveying the EPA's evaluation that the approval of the revised standards is not likely to adversely affect listed species.

Section 7(a)(2) of the ESA requires the EPA, in consultation with the Services, to ensure that an agency action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of their critical habitat. Section 7(d) of the ESA further prohibits any irretrievable or irreversible commitment of resources which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alterative measures which would not violate subsection (a)(2).

Although the EPA has not yet completed consultation with the Services, the EPA's approval of CNMI's 2018 Water Quality Standards is fully consistent with section 7(d) because it does not foreclose either the formulation by the Services or the implementation by the EPA of any alternatives that might be determined in the consultation to be needed to comply with section 7(a)(2). The EPA has authority to take additional action regarding the revised water quality standards if the consultation with the Services identifies deficiencies requiring remedial action by the EPA, after the EPA has approved the standards.

Moreover, the application of the revised standards is not expected to cause any impacts of concern

during the interim period until consultation with the Services on this standards approval is completed, let alone an irretrievable or irreversible commitment of resources. The revised standards being approved by EPA enhance the protection of aquatic ecosystems, including listed species dependent upon them, because the national criteria reflect the latest scientific information and are protective of the most sensitive species for which data is available. The EPA believes it is better from an environmental standpoint generally, and with regard to the protection of listed species and designated critical habitat in particular, to have the revised water quality standards in place pending the completion of consultation. Thus, proceeding with a CWA section 303(c) approval action prior to completion of consultation is considered a more protective condition for listed species and critical habitat during this interim period.

VI. EPA's Assessment of the 2018 CNMI Water Quality Standards

The EPA supports the recommended amendments proposed by BECQ. BECQ's adoption of the national criteria for ammonia, cadmium, selenium, and human health updates for 94 pollutants maintains consistency with the EPA national recommended criteria and reflects the latest scientific information.